MILITARY REVIEW

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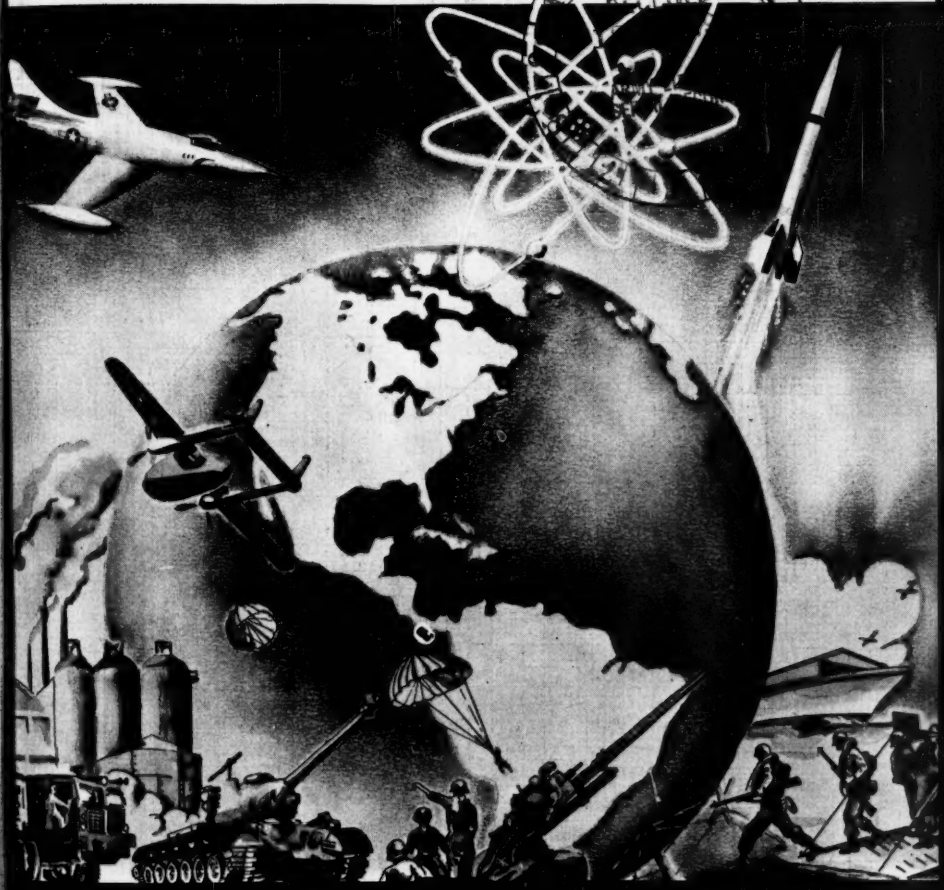

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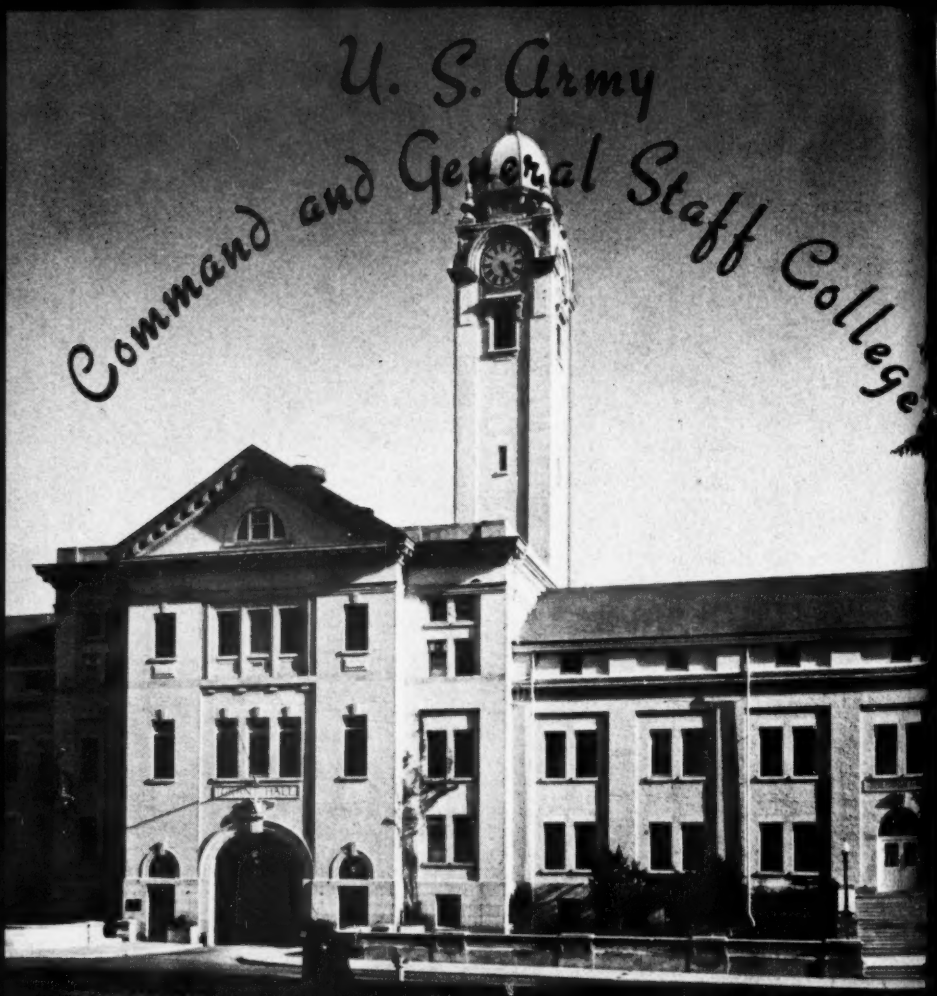

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PIVOT OF HISTORY

O. Edmund Clubb

In the following article Mr. Clubb, utilizing the background gained in 20 years of service in Asia as a United States Foreign Service officer, discusses the importance of Soviet Asia as the controlling area of the Eurasian heartland, endowed with vast and virtually untouched deposits of natural resources. He describes the ambitious plans of the Soviet leaders. Next month, as a sequel to this discussion, the MILITARY REVIEW *will publish an illuminating article by Doctor C. Langdon White, of Stanford University, analyzing the strengths and weaknesses of the Soviet Union and her resources.—Editor.*

IT WAS in 1904 that Sir Halford Mackinder expounded the thesis that the "Columbian epoch," comprising an era of some 400 years of European expansion against nearly negligible resistances, was ending, and that the closed political system of the past would again govern. Thereafter:

> *Every explosion of social forces, instead of being dissipated in a surrounding circuit of unknown space and barbaric chaos, will be sharply re-echoed from the far side of the globe, and weak elements in the political and economic organism of the world will be shattered in consequence.*

Two world wars in which the great powers fought to exhaustion, and the weaker of them were destroyed, have borne out the soundness of his analysis.

Mackinder looked further. He noted that, "The Tudor century, which saw the expansion of Western Europe over the sea, also saw Russian power carried from Moscow through Siberia." He then asked a question, and himself answered it:

> *Is not the pivot region of the world's politics that vast area of Euro-Asia which is inaccessible to ships, but in antiquity lay open to the horse-riding nomads, and is today about to be covered with a network of railways? . . . Russia replaces the Mongol Empire. . . . In the world at large she occupies the central strategic position held by Germany in Europe.*

Product of World War II

World War II brought great changes in the political composition of Asia, resulting in corresponding shifts in strategic values. That war contributed to the withdrawal of Great Britain from India, leaving an irreparable breach in the structure of imperial power in the Asiatic sphere. Japan was destroyed as a military empire that, if insular, had acted in the capacity of a continental power to counterbalance both the Soviet Union and China in east Asia. The Soviet Union was helped by the Yalta Pact to gain a position of absolute—and relative—strength in northeast Asia greater than it had ever enjoyed before. The Soviet alliance of February 1950 with Communist China brought into being a coordinated control over the Eurasian "heartland."

Those developments, and the Asian Rev-

At a time when the United States is within sight of depletion of some of her most essential minerals, the Soviet Union is just beginning the exploitation of Asia—a rich new continent now in metamorphosis

olution that World War II also bore in its train, automatically transferred the world's strategic center from western Europe to Asia. Now Japan, India, and the Middle East have become the foci of the global power struggle. And the Soviet Union is found to be engaged in shifting her weight closer to what was once the center of the Mongol Empire.

Center of Gravity Shifting

Although Prince Kurbsky led a Muscovite force across the Urals in 1483, it was only in the mid-19th century that the Russian Empire engulfed Western Turkestan and established political dominion on the Pacific Coast in northeast Asia. It was three-quarters of a century later, after the Sino-Japanese War of 1894-95, the Russo-Japanese War of 1904-5, the Chinese Revolution of 1911, World War I, and the Russian Revolution, that there began the fundamental displacement eastward from Europe into Asia of the center of gravity of the Russian State.

The new rulers of the shattered, poverty-stricken Soviet Union of the 1920's knew that there were great natural riches in Siberia. The First Five-Year Plan, launched in 1928, made initial provision for methodical exploitation of those riches. The completion of the Turkestan-Siberian Railway in 1930 was indicative of the far-reaching character of the enterprise at hand. The eastward march of the Russian Empire, interrupted by the Russo-Japanese War and the Russian Revolution, had been resumed.

Soviet Asia Big and Rich

Soviet Asia (including Russian Turkestan) constitutes three-fourths of the area of the Soviet Union. Communist Party chief Nikita S. Khrushchev in 1956 summed up Soviet Asia's natural endowment in a sentence (as quoted in translation by *Current Digest of the Soviet Press*):

. . . *in the eastern regions* [*of the USSR*] *there are concentrated up to 75 percent of all coal reserves, up to 80 percent of the hydroelectric power, four-fifths of the timber wealth, the main reserves of nonferrous and rare metals, and enormous resources of chemical raw materials, iron ore, and building materials.*

Soviet Asia's relative importance for the USSR as a whole is brought out even more graphically by a tabulation of reserves of certain primary resources, as set forth in an official French publication of 1949, *L'Asie Sovietique* (figure for iron corrected to read "billion" instead of "million"):

Material	*Soviet Asia Amount (metric tons)*	*Percent of Total USSR Reserve*
Coal	1,050.0 billion	66.0
Petroleum	5.0 billion	58.0
Iron	3.9 billion	89.0
Copper	12.5 million	74.0
Lead	4.2 million	91.3
Zinc	9.2 million	92.0

The above table should be taken only as roughly indicative of *percentages*. According to the official Soviet report on the fulfillment of the Fifth Five-Year Plan (1951-55), "Geological surveys made during the fifth five-year period considerably increased reserves of useful minerals."

Material	*Percent of Increase in Reserves*
Rich Iron Ores	91
Copper	31
Lead	98
Bauxite	221
Nickel	94
Tin	133
Molybdenum	69
Mercury	154
Petroleum	140
Natural Gas	222
Phosphorites	33
Coal	58

Those percentage increases were not broken down geographically, but it is evident that the principal new surveys are centered in Soviet Asia—and that even early postwar estimates of that area's reserves of industrial minerals must be revised radically upward.

Industry Moves Eastward

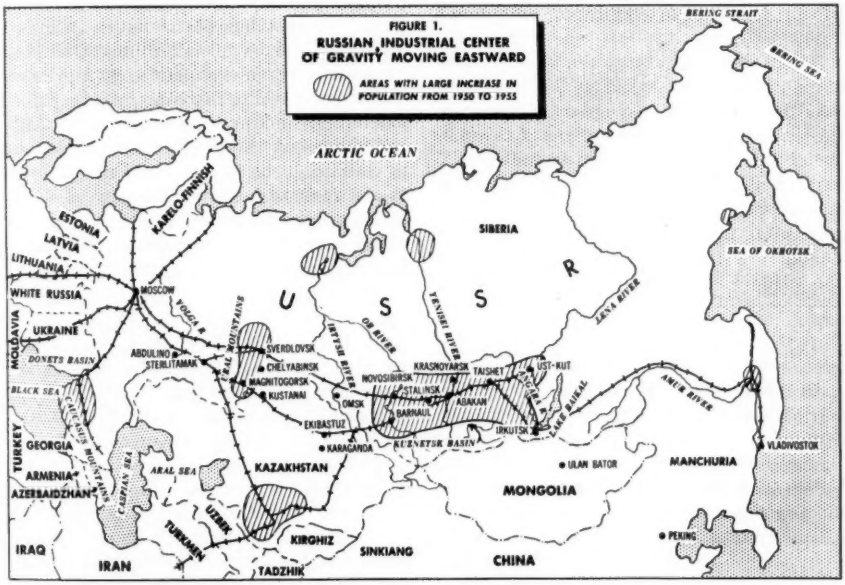
By 1941 the Ural industrial base was already contributing in important degree to the Soviet industrial output, but it took World War II itself to open the door wide to the Soviet Union's Asiatic era. Of some 1,360 large industrial enterprises displaced by the German invasion of European Russia, 915 moved far to the east:

To the Urals	455
To western Siberia	210
To central Asia	250

In 1942 alone, 16 billion rubles were invested in war industry; in three years 2,250 big industrial installations were equipped and put into service. Much of the 11 billion dollars worth of American lend-lease aid was in the form of industrial and transport equipment. The Kuznetsk—Magnitogorsk—Karaganda heavy industry complex in the Urals—Kazakhstan area underwent notable expansion.

All of Soviet Asia experienced the wartime surge in production. Where in prewar times Siberia had not been self-sufficient in respect to grain supply, now it was forced by circumstances to feed itself, or starve. The Pacific Coast fisheries stepped up their work to supplement the scanty Soviet food supply. It became necessary to increase the Trans-Siberian Railway's freight capacity so as to handle lend-lease cargo discharged at Vladivostok, and, consequently, its double tracking was completed.

Every summer more and more convoys of Soviet ships made the difficult voyage through the Arctic Ocean to lighten the



load on the Trans-Siberian—and to push forward the development of the Soviet Arctic economy as well. And ever-increasing numbers of Soviet citizens settled in the Soviet East.

Population figures show the trend. From 1926 to 1939 the total population of Soviet Asia increased from 22,026,000 to 28,795,000; in 1947 it comprised an estimated 35,615,000. This was little enough when compared with other Asian populations. But a century and a half earlier the population of all Russia had numbered only about 38,000,000.

There was no move by the Soviet nation to pull back from Asia after World War II was over. Instead, "In order to bring industry still closer to the sources of raw material and fuel, construction in the eastern regions was speeded up" from 1951 to 1955. A comparison of the increase in volume of capital investments in Soviet industry during the 1951-55 five-year period over the 1946-50 investment is most revealing:

Area	*Percent Increase Over 1946-50*
All Soviet industry	94
Ural region	120
Western Siberia	130
Eastern Siberia	110
Central Asia and Kazakhstan	120

Deep in the heart of Asia the Soviet Union is constructing a new economic base.

Contemporary Soviet reports portray clearly both the nature of the economic environment and the direction of the Soviet effort. The Kuznetsk Basin (Kuzbas) east of Novosibirsk contains high-quality coal deposits estimated to total 450 billion metric tons—with the possibility of 1,000 billion tons not ruled out. To the southwest, in Kazakhstan, there are the rich Karaganda and Ekibastuz fields, the first producing coking coal, the second described as being the largest coal deposit in the world. These and other coal deposits support the metallurgical industry centered at Magnitogorsk, in the Urals 2,000 kilometers west of the Kuzbas. Prior to recent surveys, estimates credited the Urals region with over a billion tons of high-grade iron ore.

Untold Mineral Wealth

Since World War II extensive mineral deposits have been found in the Turgai Steppe, in northern Kazakhstan. "The world's largest deposits of magnetite ores," high-grade bauxite, titanium, titanium-magnetite, and nickel ores are all present. The complex oölite limonites, yielding iron, vanadium, and phosphorus, are available in "billions of tons." The Lisakova deposit is claimed to be "as a whole not inferior to the famous Lorraine deposits of Western Europe which are the bases of the entire ferrous metal industry in France, Belgium, and Western Germany."

There also is a deposit of "tens of billions" of tons of brown coal equal in quality to that of the Chelyabinsk Basin. Thus the Great Turgai, described as one of the country's largest sources for minerals, is destined to become "a very important iron ore base for the rapidly growing metallurgical industries of the southern Urals, Kazakhstan, and western Siberia." Where industrial production for the Soviet Union as a whole is scheduled to increase by 65 percent in the years 1956-60, Kazakhstan's gross industrial production is programmed to increase about 2.2 times. That fact reveals the emphasis.

Khrushchev sketched the task ahead:

In the next 10 years we must convert Siberia into the biggest Soviet base for coal mining and production of electric power, the main base for heat and power-consuming industries, in particular the production of aluminum, magnesium, and titanium, as well as electrical metallurgy, coal chemistry, and electrical chemistry.

The Party directives for the Sixth Five-Year Plan were in that pattern:

Speed up development of the rich natural resources in the eastern regions of the country. Ensure a higher rate of capital construction in western and eastern Siberia and in the Kazakh Republic than in the USSR as a whole. Set up in these regions an integrated group of heavy industry enterprises, especially of those branches that consume a great deal of electricity and fuel; provide for the extensive construction of ferrous and nonferrous metal plants, large hydraulic and steam powerplants, oil refineries, machine-building and chemical plants, and building materials enterprises. . . .

Restrict further construction of industrial enterprises with high fuel and power consumption in the European part of the USSR and the Urals.

Power Is Key Factor

There emerges a vital factor—the significance of Siberia's vast power potential in current Soviet planning. During the 1951-55 period, "In the Urals, the Kuznetsk Basin, the South, the Center [Moscow Basin], and other regions of the country, major fuel-operated powerplants were built and put into operation." Construction of the difficult Novosibirsk hydroelectric station on the Ob River, begun earlier, was continued.

New hydroelectric projects were undertaken at Bukhtarma on the Irtysh and at Bratsk on the swift-flowing Angara River. In the 1956-60 period the construction of hydroelectric plants is to be further stressed, with development of large-scale work particularly on the Bratsk plant and on a new hydroelectric project at Krasnoyarsk on the Yenisei—each of those two plants being designed with a capacity of 3.2 million kilowatts.

In this same five-year period a start will be made toward linking up the hydro and thermoelectric plants of Bratsk, Krasnoyarsk, Novosibirsk, Irkutsk, and the Kuzbas into one power grid for central Siberia. Here is a hint of the rise of a new economic combination, far to the east of the Urals, commanding great power resources.

Increase Transportation

Tying this growing industrial empire together is an expanding network of transport communications. Under the 1951-55 Plan there were constructed 3,100 kilometers of new rail line—much of it in Soviet Asia. By the 1956-60 Plan it is proposed to lay 6,500 kilometers of new line, double track 6,600 kilometers, and electrify 8,100 kilometers of railway. "Most of this work is in the Urals, Siberia, the Far East, Kazakhstan, and the Far North. . . ."

Of outstanding importance among the new lines to go into operation are the following: Magnitogorsk—Sterlitamak—Abdulino, providing a shortcut from the south Siberian trunk line to European Russia; Stalinsk—Abakan, a section of the south Siberian line, serving the Kuznetsk Iron and Steel Works; Barnaul—Omsk, providing a new route into the Kuzbas from the Urals; and Taishet—Bratsk—Ust-Kut (a section of the Baikal—Amur Magistral) which will serve the Bratsk construction project.

O. Edmund Clubb is a graduate of the University of Minnesota, and received his Master of Arts degree from California College in China in 1940. He served in the United States Army during World War I. He served for 20 years in Asia as a United States Foreign Service officer, 18 years of which were spent in China. His duties have included assignments with the American Embassy at Peking and Chungking; Consul at Tihwa (Sinkiang), 1942; Consul General at Vladivostok, USSR, 1944-45, and at Mukden (Manchuria), Changchun, and Peking, 1946-50; and as Director, Office of Chinese Affairs, Department of State, 1950-52. He is now retired and writes on Asian affairs.

Also, "In the near future Kazakhstan will be crossed by a network of new railroads. . . ." A new railway from Kustanai to the Irtysh, to become part of "the future central Siberian Railroad," is soon to be in service. Moscow and Peking agreed in April 1956 that the Chinese Lanchow—Urumchi line (already completed as far as Yumen in Kansu Province) and a Soviet railway spurring from Aktogai on the Turkestan-Siberian Railway should meet at the historic Dzungarian Gates in 1960. And the importance of Kazakhstan will be correspondingly enhanced.

Ambitious Planning

There is a steady increase in the tonnage of freight carried by river and air transport. As regard maritime freight transport, the Sixth Plan shows a marked departure from the Fifth, proposing that the maritime freight transport 1956-60 shall increase about 2.1 times—this approximately doubling the earlier *rate* of increase. The Arctic route is to be further developed, and Far Eastern ports further expanded. Premier Nikolai A. Bulganin explained:

> *Development of trade with the People's Republic of China, the People's Democracies, the Republic of India, the Union of Burma, and other countries will result in a larger volume of export and import goods being carried in Soviet ships. There will be a big increase in freight carriage between our Black Sea, Far Eastern, and other basins, and via the Northern Sea route.*

The Soviet Union is becoming a maritime power.

Agricultural Effort

The final effort is being made in respect to agriculture. In 1954-55, by Khrushchev's direction, in a major effort to overcome agricultural deficiencies, 81.5 million acres of virgin and idle land were put to the plow, thus providing almost 60 million acres of additional grain land. In those same two years, 581 large new state farms were created in the Soviet Union—425 of them on the virgin lands. Most of the new land is in Kazakhstan and Siberia. The assigned task is considerable: Kazakhstan, particularly, with a new irrigation network under construction is expected to increase its grain output by five times in the next five years. Yet there is some reason to conclude that the Soviet Union finally may be on the way to solution of the problem of grain supply. And in 1956 Khrushchev looked for new worlds to conquer:

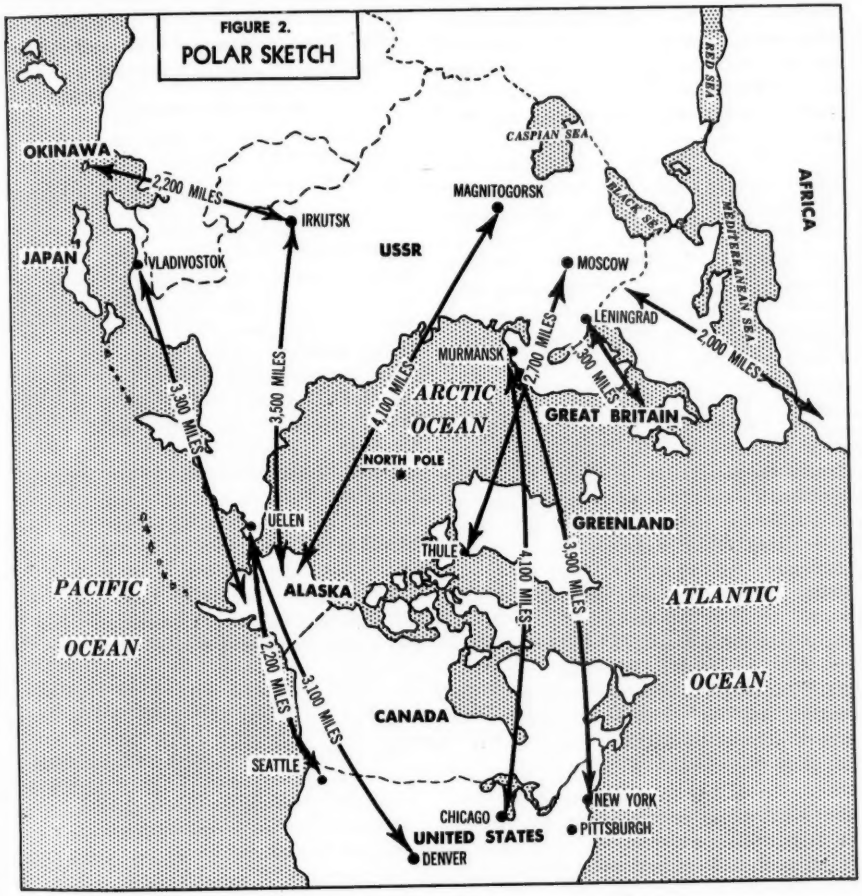
> *In further developing virgin lands attention should be paid to Krasnoyarsk Territory, Irkutsk Province, and Khabarovsk and Maritime Territories. . . . This will make it possible to create a grain and livestock base to satisfy the needs of the Far East for products of agriculture from local sources.*

In sum, single-minded purpose and events have combined to promote a massive eastward movement of the Soviet economy. The former concentration of heavy industry in the Donets Basin, and of light industry at various points in western European Russia, has given way. There is a rapid growth of plant and power in the Urals—Kazakhstan region, and of the economic complex located between Lake Baikal and the longitude of Novosibirsk. The outposts of that industrial power are being pushed on into the Soviet Far East itself.

Along with the movement of Soviet industry, the Soviet population center is shifting eastward toward Asia. At a time when the United States is within sight of depletion of some of her essential minerals —the richer iron ores, for instance—the Soviet Union is to all intents and purposes just beginning the exploitation of a rich new continent.

No Competing Neighbors

The critical factor in the present situation is that Asiatic Russia does not now abut a competitive economic area, is not barred from east Asia by an opposing political force, but instead adjoins a neighbor with whom it has closer ties than ever before—China. The resources of Soviet central Asia are supplemented by imports from neighboring Sinkiang (Chinese Turkestan), whose jade and gold are now thrust into the background by the petroleum of the rich Tushihshan field, by valuable nonferrous minerals from the Borotala Mountains, and by animal products in abundance.



In like manner, the Mongolian People's Republic offers both animal products and a variety of minerals; and in 1955 there was completed the rail link from Ulan

Bator to Dzamyn-Ude, and north China was thereby connected with the Trans-Siberian Railway system by a second (and more direct) trunk line.

Finally, in the Far East, Soviet Asia borders—and half envelops—Manchuria. Manchuria's importance in the scheme of things in northeast Asia stems partly from the circumstance that it constitutes the crossroads for the three great powers of east Asia—China, the Soviet Union, and Japan. It was rivalry in Manchuria and Korea that led to the Russo-Japanese War of 1904-5. In 1931 the Japanese springboarded from Korea into Manchuria as a first step toward (they thought) the creation of a "Greater East Asia." And Manchuria was the base area for the Chinese Communist intervention in the Korean conflict of 1950-53.

Manchuria Is Important

But Manchuria commands substantial economic power besides. Twice the size of Texas, its population of about 45,000,000 is one-half Japan's—and greater than that of all Soviet Asia. Especially strong in agriculture, it can make up from its grain surpluses (disregarding the needs of China Proper) any food deficits in neighboring areas of northeast Asia. In addition, Manchuria possesses valuable mineral resources, a rapidly growing industrial plant, developed hydroelectric-power potential, and the best system of rail communications in east Asia.

Economic strength is closely correlated with political and military power in Asia, and Manchuria, embracing in the aggregate the strongest economic complex east of Lake Baikal, constitutes the East Asiatic fulcrum of the Sino-Soviet alliance. It competently serves the over-all Communist strategy in Asia.

The Sino-Soviet alliance thus has joined most of Eurasia together in an association governed by a singleness of purpose much sharper than that motivating the United States encircling network of 42 alliances. For it is axiomatic that defensive coalitions, harassed by a diversity of national interests, are ordinarily weaker than combines formed with the aim of common gain—and China and the Soviet Union have joined forces to *promote* their common interests in the Asiatic rimland.

Important Landpower

Operating from the interior lines of a continent, the Communist allies confront the encirclement of a sea and airpower operating in an alien political environment from bases it does not own. While the United States deploys a limited strength on the eastern and southern periphery of Asia, there is being developed in the Eurasian heartland the politico-economic base of a great landpower. In the event of war the primary military theater between the United States and that power would almost certainly prove to be the Arctic Ocean, not the Pacific. For the shortest route from central Asia to Pittsburgh and New York is not via Guam, but by way of the North Pole; and if the Formosa Strait is but 100 miles wide, the distance across the Bering Strait is only 60.

Sir Halford Mackinder had speculated in 1904 on what might happen if Russia and Germany were to combine forces:

> *The oversetting of the balance of power in favor of the pivot state, resulting in its expansion over the marginal lands of Euro-Asia, would permit the use of vast continental resources for fleet-building, and the empire of the world would then be in sight. This might happen if Germany were to ally itself with Russia.*

But he also considered another alternative:

> *. . . the substitution of some new control of the inland area for that of Russia would not tend to reduce the geographical significance of the pivot*

position. Were the Chinese, for instance, organized by the Japanese, to overthrow the Russian Empire and conquer its territory, they might constitute the yellow peril to the world's freedom just because they would add an oceanic frontage to the resources of the great continent, an advantage as yet denied to the Russian tenant of the pivot region.

Soviet Position Enviable

Japan, by her strategic decision of 1941, forewent for the visible future the possibility of playing a dominant role on the Asia mainland. The Soviet Union emerged from World War II as the world's strongest landpower, and is located in the strategically optimum position for defense—or for a further political advance in Asia or (through the Middle East) into Africa. By virtue of the 1950 Sino-Soviet treaty of alliance, the Communist bloc commands Asia's Pacific Ocean frontage; there it faces the last of the great naval powers of the Pacific. In strictly military terms the Communist coalition could break out of a peripheral "containment" as soon as it had developed air and naval power roughly equivalent to that deployed against it—assuming an offsetting or neutralization of nuclear weapons. But that coalition's expansionism is not limited to military measures; and, against a weak political periphery, its political and economic penetration need not wait at all.

The situation in Asia has changed fundamentally in the past half-century, whereas the attitudes of the United States toward Asia have altered but little. It is erroneous, and dangerous, to assume the permanence of economic and political situations and processes in Asia: it is a continent in metamorphosis. For effectiveness, any strategy vis-a-vis Asia must be nicely fitted to the changing politico-economic realities of that vast continent; it must, perforce, itself have strong political and economic components.

In a letter to the Commandant of the U. S. Army Command and General Staff College, Major General George W. Hickman, Jr., The Judge Advocate General, Department of the Army, emphasizes the conclusions reached in the January 1957 MILITARY REVIEW article, "Military Necessity, Humanity, and Military Government," by Major Ned A. Holsten, MPC. Outlining US Army doctrine and practice, General Hickman says, in part: " 'Military necessity,' if such a doctrine exists, is rigidly circumscribed by international law. It is commented upon as follows in Field Manual 27-10:"

The prohibitory effect of the law of war is not minimized by 'military necessity' which has been defined as that principle which justifies those measures not forbidden by international law *which are indispensable for securing the complete submission of the enemy as soon as possible. Military necessity has been generally rejected as a defense for acts forbidden by the customary and conventional laws of war inasmuch as the latter have been developed and framed with consideration for the concept of military necessity.* (Emphasis supplied.)

Hark to the Shrimps' Whistling

Wing Commander John Gellner, *Royal Canadian Air Force*
Staff, Royal Canadian Air Force Staff College, Toronto, Ontario

THE language that Nikita Khrushchev, the First Secretary of the Communist Party of the Soviet Union, uses is earthy and colorful. Among his best-known sayings is one he coined in September 1955 when he addressed the Communist bigwigs at a banquet given in Moscow in honor of the Prime Minister of Eastern Germany, Otto Grotewohl. On that occasion he referred derisively to those foreign commentators who see in the present policies of the Soviet leaders a withdrawal from the hallowed doctrines of Marx-Leninism. "People who expect this," Khrushchev said, "will have to wait until shrimps whistle." Now, some months later, it looks as if the shrimps had indeed begun to whistle, loud and clear.

The Soviet Union is—or, at any rate, until recently was—a theocratic state, with a state religion as the basis of her organization, and with the high priests of that religion as spiritual and secular rulers. That Marx-Leninism is, in fact, a religion is generally accepted. It is a system of faith which provides the believer with an explanation of life and of the world surrounding him, and with answers to the basic questions of from whence man comes, what the purpose of his existence is, and where he is going. Marx-Leninism does *not* offer, in fact rejects, a concept of the deity, but this still leaves it a philosophy of life, a special, atheist type of religion.

Thus like all other religions it must be accepted as a whole; the rejection of only one of the principal doctrines means the complete rejection of a religion and the creating of a new. To give an example, the assumption of the supremacy in things spiritual by King Henry VIII created a new religion, the Church of England, although in the beginning no other doctrine of Catholicism was rejected except that of the authority of the Pope as direct successor of St. Peter. Lenin himself was at pains to identify communism as a religion by stressing the immutable strictness of the Communist dogma: "Marxism is one solid bloc of steel from which one cannot remove one single particle without violating the basic truth."

Khrushchev's Heresies

To the Communist faithful, Khrushchev's pronouncements at the 20th Congress of the Communist Party of the Soviet Union must have sounded like the darkest of heresies. Indeed, statements like, "War is not inevitable, and Communist and Capitalist nations must practice peaceful coexistence," or, "Communism need not come to all countries through violent civil wars but can win out by parliamentary means," are nothing less than an all-out onslaught on the Marx-Leninist dogma. It is not even necessary to enter into a lengthy discussion of Communist theory to prove this contention; Khrushchev has made matters simple for us by negating the very core of the teachings of Marx and Lenin, the doctrine of the class struggle.

In life, Marxism sees the material conditions as the primary factor, human thought only as the result, or the expression, of the continuous changes of material conditions. Consequently, humanity is governed by the laws of nature. The struggle between the forces of continuity and the forces of destruction, which in inanimate things invariably ends with the victory of the latter, is reflected in human society in the struggle between the forces

of conservatism and the forces of revolution. These forces are represented by social classes, and in their unremitting, furious struggle Marx saw the motive force of world history.

Revolution Is Essential

The periodic reconstitution of society through revolution, that is, through the violent destruction of one of the contending classes, is essential in Marxist theory. Peaceful coexistence is as inconsistent with Marxism as is evolutionary progress toward socialism and communism. Lenin, Marx's prophet in modern times, made this quite clear when he said: "As long as capitalism and socialism exist, we cannot live in peace." And elsewhere: "The existence of the Soviet state side by side with capitalism for a long time is unthinkable."

The objection will be raised that unorthodox statements like those of Khrushchev at the Moscow Party Congress have been made before by Soviet leaders. Stalin himself said similar things during World War II, obviously with the intention of hoodwinking his Western allies. The difference between the pronouncements made at the congress and those made earlier lies, however, in where they were made rather than in what was said.

New Communist Principles?

A congress of the Russian Communist Party occupies in the Marx-Leninist religion a position akin to a council or a synod of a Christian church. There, the dogma is explained and interpreted but always firmly restated. A high priest of Marxism may talk loosely on matters of faith at a reception for a foreign statesman or at a banquet, but never at a party congress. To use a comparison, a judge occasionally makes what is called an "obiter dictum," an aside which is not binding, but in his judgment every word counts. In any case, to dispel any idea that he may not really have meant what he said, Khrushchev also provided the official interpretation of his pronouncements: "This is not a tactical move; these are fundamental principles."

What can be his motives?

Theory and Human Nature

The Communist aim is a classless society living in a pleasant state of anarchy. In this Utopian "heaven on earth" in which everyone will take only those goods and use those services which he needs, and in return will spontaneously and automatically do a full day's work for society, where money and private property will be forgotten because with plenty of everything for everybody there will be no need to save or to protect what one has, there is no place for government. The latter is supposed to "wilt away" except perhaps for a few purely administrative functions (for example, vital statistics). *Where there is nothing to regulate and nobody who must be governed, no rulers are needed.*

One would have expected that the Communist leaders, as they worked toward the achievement of the Communist aim, would try and create a progressively more egalitarian society. In fact, the opposite has happened: After some 10 years of deliberate effacing of class distinctions, Soviet society has become again elaborately stratified. A new class structure has emerged, characterized by great inequalities of social status and material reward. It can be said with much more justification that privileged and exploited classes exist in

The embers of the Communist revolution* seem *to be burning very low in Russia, but she still remains an Imperialist country bent on hegemony in the free world just as she has been for more than 250 years

the Soviet Union than that such classes are found in the Western democracies.

In North America the social cleavage between rich and poor has, to a large extent, been effaced by the general leveling of incomes that has occurred in the last decade. More and more the needs of the wage earner, the standard of living that he and his family should enjoy, are made the criterion for the material reward he gets, rather than his performance. This trend is even more noticeable in Great Britain. The premium given for education is comparatively slight, that for responsibility not excessive.

Now Who Has Class System?

Things are quite different in the Soviet Union. There the spread is from the 4,000 rubles a year (three-fifths in money, two-fifths in foodstuffs), or about $400 in purchasing power, earned by the average worker on the collective farms, to the 150,000 rubles a year, or more, of the top administrators, the highest officers in the armed forces, the factory directors, and of some scientists, artists, and engineers. The over-all average income is very low indeed, less than 8,500 rubles yearly, or about $70 a month in terms of purchasing power.

This glaring inequality can best be seen in the armed forces where privates get about 25 rubles a month and major generals something under 7,000 rubles. Returning German prisoners of war have testified that Russian farmers are so poor that they are sometimes envious even of the standard of living enjoyed by the inmates of the concentration camps. On the other hand, the privileged classes live in (not always discreet) luxury. This inequality is compounded with a system of taxation which, by arresting tax progression at a flat 13 percent for incomes over 1,000 rubles a month, strongly favors the high income groups.

Position even more than income assigns a Soviet citizen into a social class. There is a very close association between job level and social ranking; the resulting differences in caste are very sharply defined.

Protect What You Have

It is only natural that those who belong to the privileged classes, the beneficiaries of the Soviet system which allows such glaring inequalities, should wish to perpetuate the advantages they enjoy. For many years now the Soviet upper classes have tried by various devices to protect their vested interests. The development of an officers' class in the Soviet armed forces is a good example of this trend so firmly anchored in human nature. The Bolshevik revolution of 1917 abolished all rank distinctions in the forces. This experiment did not last long. Early in 1918 ranks came back into the Red Army, and as the years went on the perquisites of rank were gradually introduced again.

Still, the regime remained bent on preventing the formation of an officers' class. Cadetships were reserved for sons of "toilers"—the sons of officers were thus barred from following their fathers' profession. This restriction has gone by the boards long ago. Soviet officers now mostly come from the Suvorov and Nakhimov schools which are not very different from the cadet schools of Czarist Russia. Like in the latter, sons of officers have priority of entrance into the Suvorov and Nakhimov schools. The Soviet officers' corps is even

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now quite exclusive, and the gulf between officers and men is very deep. Now that the scions of officers' families are joining the corps, class consciousness will become even more pronounced among its members.

High Office Less Risky

The desire to protect their vested interests must be strong among the Communist Party leadership in the Soviet Union. It must be particularly strong just now when, after the death of Stalin and the liquidation of the regime of absolute terror following the fall of Beria, tenure of high office has become less risky than it had been heretofore, and even something like stability has been achieved at the top of the party hierarchy.

Under these circumstances, world revolution, the establishment of a classless society, in fact, the whole creation of the Utopian world of the Communist ideal, must be a quite unattractive prospect to the Soviet leaders. It would not be surprising if they wanted to preserve the social structure which they have helped to create and in which they now hold the top positions, even if that could only be done by arresting the course of the Communist revolution.

Withering of Revolutions

The aim of revolutions is the reconstitution of society, in one country if they are local in character, in large parts or in the entire world if they are of global significance. Local revolutions generally have a limited and prosaic aim; the worldwide revolutions strive for Utopia, an ideal reorganization of society. The aim of the latter has never been achieved, so far, in human history, but they have always left a deep imprint on mankind. The Communist revolution of the last four decades is one of those global upheavals which, although launched in quest of an unattainable goal, have shaken the very foundations of human society.

The fact that they are reaching for Utopia has, in the past, shaped the course of the great revolutions. Invariably they have either ended in destroying themselves or they have withered in apathy. In the first case, the revolutionary leaders, impatient because the lofty aim of the movement remains remote, tend to rationalize their lack of success by blaming it on the incompetence, sabotage, and treachery of their colleagues. There is a purge. A revamped leadership takes over only to become suspect again after a time because the goal seems still as distant as ever. Purge follows purge until the revolution collapses in the final bloodbath.

Sometimes, however, people just get tired of striving for an elusive goal. They want to be rid of the dynamism of the revolution. They long for stability. If this lack of revolutionary fervor spreads to the leaders, the course of the revolution is arrested; it dies from lack of air that would fan the flames.

The problem that faces the revolutionary leaders is to keep the revolutionary spirit alive without destroying the movement through an excess of fervor. Stalin mastered this problem. Lesser men have at least realized its significance (for example, Perón who not long before his fall spoke about the necessity of "permanent revolution" in Argentina).

Communist Flame Dying

From what we know there is little evidence of revolutionary fervor in the Soviet Union. Indeed, there seem to be many more Marxist zealots outside than inside the Communist motherland. By and large, the social structure erected by the revolution has been accepted. As we have suggested earlier, there are powerful traditionalist forces at work, firmly wedded to the present organization of Russian society and bent upon the *status quo*. If there is any inclination to destroy the present social structure—a necessary prerequisite to the achievement of the Communist ideal—it has not come to the fore in recent

years. The embers of the Communist revolution seem to be burning very low in Russia. The time may be at hand when they will be extinguished.

In this connection it is interesting to speculate on the significance of the official thesis pronounced by the Communist Party of the Soviet Union that in Russia the building of socialism is completed. This thesis was first spelled out in the fall of 1955 when Mr. Molotov was publicly rebuked for stating that the USSR was striding successfully toward socialism. He recanted in the approved manner, admitting that no more striding was necessary because a perfect Socialist order now existed in the Soviet Union.

At first sight the insistence on the completion of the Socialist phase of development in the Soviet Union seems to bode ill for the peace of the world. In Marxist theory, socialism is the penultimate stage in the development of mankind, while communism is the last. The latter can only be achieved in a classless society, which, in turn, can be created only after the consummation of the class struggle in world revolution. As, according to the doctrine, the progress of humanity is continuous from one plateau through revolution to the next higher plateau, the thesis of the completion of the Socialist stage in Russia was generally interpreted as a warning that world revolution would now be unleashed in an all-out effort to bring about the conditions necessary for the building of communism.

In the light of what we have said earlier there is, however, perhaps another explanation. Is it not possible that the Soviet leaders want to say to the Russian people: "This is it. There will be no more fundamental changes. This is as far as we go"?

Bewildered and Disillusioned

We have ventured the guess that the average Russian will accept his leaders' attack upon the Marx-Leninist doctrine with equanimity and even with approval. He must feel the relief that intelligent men probably felt at the dawning of the modern age in history when they became aware that they were freed of the spiritual oppression of the Middle Ages. For just as the theologians of his day forced Galileo Galilei to deny the truth which he had found because it conflicted with what was then recognized as dogma, so the Marx-Leninist "superscience" has exercised a tight and insensible control on the sciences, on art, on literature, indeed, on all intellectual pursuits in the Soviet Union.

The convinced Communists, and there are many throughout the world, must have received with bewilderment and horror the news of the distortion of the Marx-Leninist faith at the Moscow Party Congress. The majority of them must have in any case had grave doubts about the correctness of the gospel as preached from Moscow. "Maximalism," the demand that the Marx-Leninist program be carried out to the letter and without delay (and that includes the immediate launching of world revolution), was stamped out in Russia as a deviation by Stalin in the late 20's and early 30's. Ever since then the rule has applied that the farther a Communist cell was from Moscow and the more tenuous its contacts with the fountainhead of communism, the more orthodox it was in its Marxist teachings. That this should be so among the Trotskyites (the most important "maximalist" movement in present-day communism) is not surprising. But the rule holds good also among some groups which outwardly follow slavishly the leadership of the Kremlin.

Defections because of disillusionment have always been numerous among Communist intellectuals: usually it was disappointment with the spiritual leadership as exercised by the chiefs of the Russian Communist Party, not with Communist practice. Valentin Gonzalez, who as "El Campesino" was the most successful of

the Communist generals in the Spanish Civil War, put the despair of the sincere and thinking Communist into these simple words: "The thing called communism is, in truth, vulgar fascism under a red banner. . . . The Soviet Union was the deepest disillusionment in my life."

No Grounds for Rejoicing

It is about time that we stopped those readers who may have accepted our diffidently presented theory that the Soviet leaders intend to arrest the course of the Communist revolution from shouting, "hallelujah." There were never less grounds for rejoicing, never less reason for relaxing our vigilance.

The Soviet Union can only gain from terminating her social experiment. The first true Socialist state has been created. All the means of production are held by the state. The economy is fully planned. Political leadership is in the hands of an oligarchy of a new type—we may call it the oligarchy of the managerial class. As concepts of nationality, race, and religion have become comparatively unimportant, there is a good chance that the ruling oligarchy will recruit its members on the basis of ability diluted possibly only by a dash of nepotism.

The Socialist structure of society has been generally accepted by the Russian people. There is undoubtedly a popular demand for more freedom and democracy within the existing social structure, but hardly any demand for more experimentation for the sake of achieving communism. The ruling managerial class seems supremely confident of its ability to increase the might of the Soviet Union, while placating its citizens by a slow but fairly steady rise in the standard of living. In a growing economy, such revolutionary forces as may exist in the country can be easily controlled by the big and well-trained apparatus of suppression.

Outside the USSR the arresting of the revolution in Russia may remove (or may already have removed) the most important of the catalysts which hold the Soviet bloc together. Judging from what is known of their past, men like Mao Tse-tung, Tito, or Gomulka are almost certainly Communists of much stricter observance than Khrushchev or Bulganin—if these two top Soviet leaders can indeed be called Communists at all. As decentralized communism—this is probably the better designation than the antithetic "Nationalist communism"—is clearly more acceptable to the masses than the brand dispensed and controlled from Moscow, the loss of coherence in the Soviet bloc may possibly be offset by greater intrinsic strength in the Communist-dominated countries. In that sense the present weakening of ties inside the Communist orbit is undoubtedly an immediate gain for the West, but it will not necessarily work to our advantage in the long run. Similarly, the Communist Parties in the free countries may, after some internal regrouping, be able to make capital of their growing independence from Moscow.

Thus the apparent edging away from communism by the Khrushchev-Bulganin group in the Soviet collective leadership has not removed the threat of communism, but merely the former main source of the threat. Russia herself remains an Imperialist country bent on hegemony in the world just as in these last 250 years ever since Peter the Great's reign. It may indeed prove more difficult to counter the pressure exercised by a regime of hardheaded, practical men unburdened by theoretical scruples and Utopian aims, than that brought to bear by propagators of a vague philosophy persuasive and fanatical as they may be.

KOREA AND LOGISTICS

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This article is taken from a study on "Logistical Support for the Conflict in Korea," written by Doctor Huston for the Office of the Chief of Military History, Department of the Army. Requests for permission to reproduce all or part of this article should be addressed to that office.—Editor.

IN THE movement and support of her own forces, in the support of the forces of the other members of the United Nations, and in the support of the forces of the Republic of Korea, the United States was involved in one of the greatest logistical undertakings of her history.

The total tonnage of supplies of all classes shipped from the United States to the Far East during the three years and one month of the Korean conflict—approximately 31.5 million measurement tons—was more than twice the tonnage shipped from the United States in support of the American Expeditionary Force in World War I during the 19 months from June 1917 through December 1918. It was 82 percent greater than the total shipment of supplies (17,277,000 measurement tons) for the support of Army ground and air forces in the Southwest Pacific Area—General MacArthur's command—in World War II in the 37 months from August 1942 to August 1945.

$17 Billion Price Tag

How much military operations cost the United States in terms of money for goods and services can only be approximated very roughly. On the basis of data prepared in the Statistical Analysis Section, Supply Planning Branch of G4, the Office of the Comptroller of the Army estimated the total cost to the Army of operations in Korea for the period 27 June 1950—30 June 1953 to be about $17,200,672,000.

This included something like $11,756,134,000 for supplies shipped to the Far East (excluding equipment which accompanied troops), $1,522,925,000 for contractual services in the movement of troops and supplies, and $1,729,152,000 for the cost of activities of installations both in the United States and the Far East directly supporting the Korean operations. The pay of soldiers in tables of organization and equipment units amounted to about $2,192,461,000 for the period.

One of the factors which complicated the accurate calculation of costs (as it did the estimation of requirements for service troops) was the support given allied forces in Korea. In the long view this aspect of logistics might be one of the most significant of all because the United States seemed to be firmly committed to a policy of support to allies as a principal means of ensuring security for the future. If the American policy were successful, any future outbreak of war also would be met by an allied force. Experience in logistical cooperation in Korea could have much significance for those future occasions if and when they arise.

World War II a Prerequisite

There could have been no Korean conflict without a World War II preceding it. It generally is true to some extent that the supplies and equipment produced in one war tend to become the reserve of the next. Modern warfare requires a substantial cushion for meeting matériel requirements during the first one to two years of

a conflict before industrial mobilization permits current demands to be met from new procurement.

During World War I the United States had to depend on her allies to provide that cushion, American forces using a large proportion of British and French weapons, vehicles, and other equipment throughout that war. In World War II certain equipment left over from World War I proved to be valuable in the early stages of training and combat, but more important was the resistance of Great Britain and Russia and the lend-lease program which allowed the United States an additional 18 months after the fall of France in which industrial mobilization could begin to become effective.

Equipment left over from World War II provided the only cushion in the Korean conflict. Without it, combat operations in Korea simply could not have been supported. In this case the preceding war had been so recent, and its scope had been so vast, that huge quantities of matériel still were available.

Stocks maintained in various matériel reserves were almost entirely of World War II supplies, for there had been virtually no new procurement in most items since the end of World War II. In addition, great quantities of World War II equipment remaining on the Pacific islands plies quickly were the result largely of practices which developed during World War II.

Japan Highly Important

The logistical importance of Japan in this entire picture hardly could be exaggerated. The depots and other facilities for backing up supply activities in Korea were located there. The essential rebuild program depended on Japanese industrial facilities and labor—resources which also provided vital services in the transportation and handling of supplies and the movement, housing, and hospitalization of troops.

The Eighth Army in Korea fought with virtually the same weapons the Army had used in World War II. Recoilless rifles, developed just at the end of World War II, had their first extensive battlefield tests —generally with quite satisfactory results. A new, larger "bazooka"—the 3.5-inch rocket launcher—became available just after the beginning of the conflict, and several thousands of them were flown to Korea for use against Communist tanks. They quickly won favor, but as it turned out the Communists practically stopped using tanks, although the Chinese and North Koreans captured a number of the new bazookas and turned them against American tanks.

No completely new American tank got

United States support in the conflict in Korea was one of the greatest logistical efforts in our history. The lessons learned and the procedures developed there should prove of tremendous value in the future

fed the rebuild plants in Japan to make up serious shortages.

But the importance of World War II in the logistical support of the Korean conflict went beyond the matter of essential matériel reserves. The very procedures by which the ports of embarkation and the technical services were able to fill requisitions and build up shipments of sup- into action in time to prove itself on the battlefield in Korea. All forces in Korea depended mostly on World War II trucks during most of the conflict—and most of those came from rebuild and overhaul operations in Japan. New model 2½-ton cargo trucks and jeeps (costing more than twice as much as the World War II models) began replacing the older models in

American units in the summer of 1952. Thereafter the World War II trucks, as they were replaced, were transferred to the Republic of Korea Army.

Ammunition Supply Problem

Probably no item of supply attracted more public attention than ammunition. It seemed incredible to many that American production still had not been able to overcome all shortages of ammunition more than two years after the outbreak of war in Korea. Locally, shortages could be attributed, not to the exhaustion of available supplies, but generally to difficulties of local distribution.

Yet it was true that total stocks in the Far East Command, for a number of significant types of artillery and mortar ammunition, frequently did fall below the *authorized level* of supply (90 days), and at times dropped well below the 60 days of supply defined as the *safety level.* Reasons given for the failure to maintain full authorized levels were:

1. The unusually high rate of fire deemed necessary by General Van Fleet to offset the enemy's large numbers in particular situations.
2. The fact that no ammunition production lines of any consequence were in operation in the United States.
3. The long lead time—about a year and a half—required to establish production lines and get quantity production.
4. The fact that the Department of Defense, holding to an assumption of early termination of the conflict, set restricted budgetary guidelines for ammunition procurement.

Yet the real shortage was not in Korea. There all the ammunition needed for any particular operation was available to the extent that it could be moved with existing transportation. The real shortage, although this was not the aspect receiving most public attention, was in the Army's total ammunition resources in relation to its worldwide commitments and responsibilities.

Limited by Transportation

The burden on transportation imposed by the unusually high rates of expenditure of artillery ammunition in Korea at various times—particularly when the days of fire and authorized levels were increased—was as significant as the drain on the ammunition supplies themselves. When United Nations forces struck back at the Chinese in May 1951, for instance, transportation probably was the limiting factor on what could be done. An operations research team which surveyed the Soyang River campaign concluded:

It would not have been possible to support a larger number of troops, or a larger or more intensive campaign, with the transportation capacity then available to X Corps.

Land transportation in Korea probably was the key to the entire logistical effort in support of operations there. This meant dependence on the Korean railways for major supply shipments, supplemented to some extent by highway transportation. Delivery to forward units was mostly by motor trucks, augmented in areas of rough terrain by the hand carriers of the Korean Service Corps. Perhaps the most serious continuing bottleneck in the transportation system was in moving goods out of the port areas, and this situation was ag-

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gravated by the concentration of depots in the Pusan area, near the port facilities.

For logistical support of combat operations across the world's largest ocean, sea transportation, of course, was essential too, but once sufficient shipping had been put into service early in the conflict, overseas movement of supplies and troops proceeded relatively smoothly under the supervision of the Navy's Military Sea Transportation Service.

Air Freight Negligible

Air movements by Military Air Transport Service, directed by the Air Force, also went smoothly once agreement had been reached on the determination of priorities. But the very effectiveness in delivering small shipments of high-priority cargo, and the glamor of speed associated with individual flights, tended perhaps to exaggerate the significance of the Pacific airlift in supporting the troops in Korea. A very small part (less than one percent) of the supplies shipped from the United States went by air; the planes available could not approach the speed of Liberty ships in delivering 10,000-ton quantities, and air transportation was far more costly than sea transportation.

The air age really had not yet arrived insofar as normal transportation was concerned. Sometimes examples, intended to emphasize how the world had shrunk in point of time-distance, were exaggerated. It might be suggested, for example, that Tokyo now was closer to San Francisco, in time, than Philadelphia was to New York during the Revolution. This was held to be so because an airplane in 1953 could span the Pacific more quickly than a horse-drawn coach could go from New York to Philadelphia in 1780.

But this comparison is not altogether a fair one. It compares a very special method of travel with a common method. An army might march from New York to Philadelphia in a matter of five to seven days. In 1953 no army could reach Tokyo from San Francisco in that time. It took nine days after the first warning for first elements of the 2d Division to begin moving from Tacoma in July 1950, and it took 29 days for the entire division to complete preparations and sail, and it was 34 days from the time that the first ship sailed from Tacoma until the last tactical unit arrived at Pusan.

In the period of the Korean conflict, sea transportation still was normal. But air transportation did make important contributions in at least two ways—in delivering small quantities of essential items quickly, and particularly in the evacuation of casualties. Its greatest value was in its being—so that it would be available for emergencies.

The evacuation and hospitalization system generally was about the same as had been used in World War II. Probably the most significant developments in this connection were the general use of Mobile Army Surgical Hospitals, the use of helicopters for battlefield evacuation, and the general reliance on air transportation for the evacuation of casualties to Japan and to the United States.

Maintenance Difficult

Difficulties in the maintenance of equipment in Korea appeared almost from the outset of hostilities. The additional strain put on vehicles by intensive use over poor roads and mountainous terrain, mechanical weaknesses in certain of the tanks, and periods of intensive firing of artillery contributed to these difficulties. But much of the trouble in the early months of the conflict seemed to be more the result of a lack of well-trained men to handle the necessary organizational and field maintenance than of defects in the design or materials of the equipment itself. Most of it was of types which had held up well under strenuous combat conditions in World War II. Lack (or misuse) of tank repair men in the infantry regiments was especially noticeable. Another difficulty, at least until

1952, was the inevitable shortage of spare parts. This was an especially acute problem for the great variety of highly specialized engineer equipment which had to be kept in operation.

Which was the most important aspect of logistics in Korea? We might as well ask which is more important, the gun or the ammunition; or which is more important for a truck, the motor, the drive shaft, or the fuel? Probably the most general limiting factor in Korea was transportation.

But by the very nature of logistics some one or more elements of supply, transportation, or services almost always must be limiting factors in any given situation. If Korea had been a country covered with rail lines and express highways, with all the rolling stock, vehicles, and fuel desired, then something else—probably the supply of ammunition—would have been the limiting factor. Then if all the ammunition in the world had been available, some other factor, perhaps the supply of artillery tubes, would have set the logistic limitation.

Almost never will all logistic requirements be satisfied in an exact balance, and as long as that is true, and as long as military operations are governed by the finite, some phase of logistics is bound to be a limiting factor.

It, therefore, would serve no useful purpose to isolate one element of logistics and show that it limited the scope of possible military operations, unless it also could be shown that all the other logistical requirements could have been met to support the operations in question.

Couldn't Happen Again

It is difficult to draw generalizations from the Korean experience which would have application at other times and places. There never could be "another Korea." Even a resumption of hostilities in Korea would be under very different conditions from those prevailing in June 1950.

Only by drawing heavily on World War II equipment both in the Far East and in the United States, and on the resources of Japan, was it possible to meet the logistical requirements.

No Prepared Plans Ready

Neither the Far East Command nor the Department of the Army appeared to have any prepared plan for support of military operations in Korea. The decision to go into Korea with ground forces apparently was an off-the-cuff decision supported by a spontaneous recommendation from the Far East without reference to logistical plans and analyses. When questions were raised in the Department of the Army, in a general way, about logistical feasibility of a campaign in Korea, affirmative responses were based more upon faith than upon studied inquiry. At the moment the question was not what *can* be done, but what *must* be done. In meeting the first critical demands Army leaders in Washington, Tokyo, and Pusan mostly had to "play it by ear." Detailed planning did begin at once, of course, but that planning might have been done more quickly and more effectively had there been some planning preceding it.

Perhaps this experience would suggest that something might be gained by developing detailed plans for supporting various types of possible operations in potential areas of conflict in all parts of the world. It is patently impossible to have concrete plans to meet all eventualities. Yet there is an advantage to be won in the very process of planning, even if the plans themselves have to be "thrown out the window" when the emergency comes.

Experience Is Valuable

In the planning process certain data must be gathered and evaluated, procedures considered, limitations studied, and assets analyzed. This makes simpler and quicker and more efficient the actual support when the necessity arises. Even if

all proposed lines of action have to be rejected in favor of something entirely new, at least the search for workable plans will not have to be delayed by "blind alley" approaches which might have been discovered earlier. Moreover, new data may be put to use more quickly and effectively if only the basic questions have been sought out in advance.

Improvisation depends upon imagination, and imagination depends upon experience—personal and vicarious. This is a major contribution of the service schools, and it is a function of continuous on-the-job planning. This too is the place of military history—to provide rich experience out of which imaginative leaders will create new methods to meet new situations.

Imagination Helped

Scores of examples could be cited where imagination triumphed over adversity in providing support for the Korean battles. As the early North Korean offensive gained momentum in July 1950, the 2d Division moved in record time from Fort Lewis, Washington, to the Korean battlefield.

After the Chinese intervention imaginative officers both in Japan and in the United States got emergency shipments of equipment under way quickly. Such procedures as MARINEX and CONEX provided means for rapid sea transportation of high priority cargo to supplement the airlift.

Improvised cable lifts performed valuable service in delivering supplies and bringing out casualties from almost inaccessible battle positions in the Korean mountains. Korean hand carriers and helicopters soon became almost indispensible for supply and evacuation across the rugged mountain country.

Helicopters never were available to the Army in large enough numbers to play the role planned for them in transporting supplies. Most Army helicopters were devoted to the evacuation of casualties, but the limited experience of Army units, and to a greater extent that of the Marine Corps, suggested that helicopters could be expected to play an increasingly significant part in future supply operations.

Quartermaster Innovation

The perfection of Quartermaster service centers was one of the outstanding developments of the Quartermaster Corps in Korea. The combination of shower and clothing exchange points and repair and maintenance facilities in the same vicinity went a long way toward saving clothing while contributing to the health and morale of the troops. On the other hand, a great deal of waste in clothing and equipment, particularly in the discard of unpopular items, was evident at various times. The unfortunate failure to get winter clothing and equipment to many of the troops in North Korea before the onset of cold weather in 1950-51 indicated how events might nullify particular plans in that kind of a situation.

Pusan remained the primary depot area as well as the primary port in Korea throughout the war. As such it probably was the most lucrative target for an enemy bombing force in all Korea. Destruction of the port and storage facilities in the Pusan area would virtually have paralyzed the United Nations military effort. Here certainly no lesson was to be learned from the fact that they got away with such a concentration of supplies and facilities. On the contrary, everyone seemed to recognize the danger, but because of a shortage of service personnel, the lack of suitable facilities and necessary transportation lines elsewhere—together with a certain amount of inertia—little was done to correct the situation before the end of hostilities.

Mobile Hospitals Tested

Korea provided the first operational use of the Mobile Army Surgical Hospital in the evacuation and hospitalization system.

This hospital had been organized as a 60-bed unit to be located with or near division clearing stations for the purpose of providing surgical treatment for casualties too badly injured to be evacuated further to the rear without first having such attention.

Actually, the Mobile Army Surgical Hospitals supporting the Eighth Army were expanded to 200-bed units, and they served as small evacuation hospitals during most of the conflict. Apparently the limited and channelized surface transportation facilities in Korea, and the growing reliance on air transportation, made it less practical to use these hospitals in the way originally intended. In the last months of the conflict some of these mobile hospitals were cut back to 60-bed units, and it seemed likely that the use of the 60-bed units with divisions would continue to be regarded as standard practice in places where communication facilities would permit it.

Air Evacuation Rapid

Evacuation of patients both to Japan and to and within the United States was mostly by air. Army Medical Service officers in Japan developed a system for receiving patients by medical holding companies at three different airfields, and for screening them at three separate hospitals so that congestion at a single receiving hospital could be eliminated. Within the United States the hospital train practically was a thing of the past, as patients arriving from the Far East were flown to hospitals chosen near their respective homes for convalescence.

For other uses than the evacuation of casualties, air transportation within the Far East Command was most valuable for emergency delivery of specific items of equipment and supplies—such as the dropping of supplies to elements of the 1st Marine and 7th Infantry Divisions isolated in the Chosin Reservoir area in November-December 1950, including the parachute delivery of an *M-2* treadway bridge.

In the control and operation of air transportation the division of responsibility among the Air Force, the Transportation Corps, and the Quartermaster Corps was not clearcut and firm. This was a question demanding further study.

New Methods Devised

Various modifications in techniques and procedures developed in Korea recommend themselves for future consideration. Soldiers thriving on fresh vegetables flown from hydroponic farms in Japan are not likely to expect a less attractive bill of fare in the future. Engineers facing an "impossible" task of railway bridge building some time in the future could recall the reconstruction of the Kilra-Chon bridge south of Wonju in April 1951—the effort which called for the erection of two prefabricated replacement towers 103 feet high, the fabrication of a continuous girder 270 feet long and weighing about 130 tons by bolting and welding I-beams, and the launching of the girder by means of special rollers made in Japan.

Supply officers looking to the setting up of Class IV supply projects for some future operation might turn to the five-quarters' (15 months) engineer Class IV supply forecast system. Such a system was developed late in the Korean conflict to assure a more uniform flow of Class IV materials by providing a constant review of requirements and revision of the current status of supply for the benefit of each supply agency concerned.

There is something to be said for a suggestion that the United States, in cooperation with her allies, should stockpile all kinds of military supplies at strategic points near areas of potential danger in various parts of the world. Under such a plan cadres of logistical commands could receive, store, and protect the supplies; then, if an emergency developed, service troops could be flown to the bases maintained nearest the threatened area to begin full-scale supply operations.

It would be a problem to maintain significant quantities of matériel in remote places, but such a distribution would make it possible to maintain lower depot levels in the United States, and that such supplies could be useful was demonstrated in Korea where equipment which had been left unattended for years on Pacific islands played an essential part in the success of operations.

How to Divide Manpower?

Perhaps the general problem from which it was most difficult to draw definite conclusions was the question of personnel to perform all the logistical functions needed. It has become common to make the ratio of combat troops to service troops the measure of efficiency in the Army. By itself this ratio may mean nothing. The important factor is the total amount of effective firepower which can be brought to bear against the enemy. If the greatest total of effective power can be delivered with one combat man for each service man, then this is the desirable ratio; but if 1,000 service troops for one combat man are needed to achieve that maximum, then that is the desirable ratio.

Local Labor a Big Help

If it impairs combat effectiveness, a small ratio of service to combat troops is to be avoided rather than sought as an objective in itself. But the situation was such that the ratio in the Far East, whatever that ratio happened to be, would not necessarily be a reasonable one for other areas. In Japan, American forces had the services of an effective labor force which could not be counted upon in all possible theaters of operations. The Japan Logistical Command estimated that if all the supply and service functions of that command had been carried out without the use of Japanese workers, an additional 200,000 to 250,000 service troops would have been required.

The use of local labor in Korea was much less efficient, although hardly less significant, than in Japan. By the fall of 1951, United States forces in Korea were employing over 77,000 native workers in the rear area in addition to the 50,700 members of the Korean Service Corps and 30,000 other laborers within the corps areas. Without close supervision Korean laborers often were careless and undependable. But without their assistance it scarcely would have been possible to deliver supplies to frontline units or to complete when needed many of the engineering construction projects.

Contract labor, which put a premium on inefficiency by making the contractor's payment dependent upon the expense of the labor he furnished, was so unsatisfactory that in the summer of 1951 the Army resorted to a policy of direct hire labor whenever possible. But the greatest shortcoming was in the lack of training and doctrine for the employment of indigenous labor in the Army. Here was something upon which the Army was depending for its very existence in the Far East, yet no one had thought about it sufficiently to include planning, training, and indoctrination of Army staff officers in the proper use and supervision of such labor.

Detailed Policy Needed

In the 2d Logistical Command, General Paul F. Yount set up a school, intended originally to train Koreans in American methods, but which became a school for training Americans to supervise Korean workers. Moreover, a firm Army policy was needed which would spell out clearly the responsibilities for the procurement, training, organization, control, assignment, and administration of indigenous personnel. The lack of such a doctrine resulted in having various headquarters and staff sections at times work at cross-purposes in these matters. As a result of a recommendation of the Army Logistic Support Panel in October 1951, the Quartermaster Corps was assigned the responsibility of operating a centralized common

labor service in active theaters of operation.

The use of local labor, both in Japan and Korea, undoubtedly reduced the number of service troops required, although it meant hiring more than an equivalent number of local workers. On the other hand, service units were called upon for a much greater burden than otherwise would have been the case by reason of the logistic support furnished to other United Nations and Republic of Korea forces. Curiously enough the number of service troops actually used in the Far East (in 1951) approximated closely the 43 percent of theater forces (not counting the organic service units of the divisions) established in the Army's planning data.

Not Enough Technicians

Finding enough skilled technicians for logistical support activities was a problem which became more pronounced with each technological advance in the conduct of warfare. A shortage of trained specialists in the Army already had become so acute, even before the attack in Korea, that in June 1950 the Department of the Army published a directive providing for the ordering of qualified men to specialists schools involuntarily if enough qualified were not available. Someone had to do those service jobs if the Army were to carry out its mission at all.

At the same time, men assigned to logistical duties doubtless were aware of a certain amount of resentment against "rear echelon" troops on the part of combat men and others who intimated that a man was doing something less than his full share unless he were firing a gun at the enemy. Apparently moved by an underlying compulsion to fairness, that all men ought to be placed in jeopardy of life and limb in combat to about the same extent, G3 offered a proposal in 1951 that all men be given the same basic training and that individuals be interchanged between combat and noncombat units. G4 refused to go along with the proposal on the ground that branch training was essential, and that an interchange of soldiers between combat and service units would reduce both combat effectiveness and logistical effectiveness.

Dual Role Headquarters

In administrative organization the Far East Command retained certain discrepancies until the beginning of 1953 by which time it had developed a theater structure closely paralleling that outlined in established doctrine. The principal modifying factor on the higher level was the United Nations Command Headquarters—principally the main divisions of Far East Command Headquarters with the addition of combined staff sections including members from other cooperating nations. But the actual direction and execution of logistical activities remained on a national basis, and the logistical organization developed by 1953 generally "followed the book," with certain local adaptations.

The principal deviation from the "normal" was in the designation of the Korea Communications Zone (KCOMZ) and in the organization of a single section headquarters under it. Actually, Army Forces, Far East, served as the theater communications zone headquarters, while KCOMZ really was cast in the role of a base or intermediate section, yet the resulting anomaly, if it were such, probably was traceable to the book itself. In a unified command where an Army officer was commander in chief, it was to be expected that he would command military operations directly through the field army commander (or army group commander if there were one). With no tactical functions, the theater army headquarters, in this case Army Forces, Far East, was concerned almost wholly with administration and logistics. In these circumstances a separate theater communications zone headquarters would have been superfluous.

Overlapping in Korea

Perhaps more serious was the "layering" of logistical headquarters in Korea resulting from the establishment of a single section headquarters—Korea Base Section—under Korea Communications Zone Headquarters. It is true that the supervisory functions of KCOMZ were broader, including control of the 3d Military Railway Service and responsibilities for area administration, prisoners of war, and civil affairs. Yet in supply functions duplication of effort often appeared in practice between KCOMZ and Korea Base Section until, several months after the end of hostilities, the two headquarters were combined and subordinate area commands set up.

The attempt of the higher headquarters (KCOMZ) to restrict its activities to planning, policy making, and supervising proved to be impractical. On the other hand, Korea Base Section, which was supposed to be the operational headquarters for supply, found itself at a disadvantage in having the railroad under a separate headquarters.

A single headquarters with complete operational control of all facilities seemed to be more desirable for a communications zone not requiring two or more sections.

At the same time the soundness of the logistical command concept—the idea of having a headquarters organized under an approved table of organization and equipment for certain types of logistical missions—appeared to be well established.

Army Organization Sound

The logistical organization of the Department of the Army in the United States proved to be able to meet the shock of the Korean emergency with some expansion of personnel, but with only relatively minor readjustments in organizational structure. *This was a significant achievement. It was the first time that the Army's peacetime administrative machinery had been able to provide the essential services and supplies of a war situation without a far-reaching reorganization.*

In some ways the Army's service and supply organization still seemed to embrace too much red tape, to encourage too much duplication of effort, and to be too ponderous for speedy operation. Some officers and civil officials thought that greater efficiency would have been possible under a thoroughgoing reorganization. Others felt that an all-out mobilization would require a return to something like the Army Service Forces in World War II. But many were satisfied that the organization of G4 and the technical services which had been effective in peacetime and in the Korean emergency could serve as well in any future emergency.

Emphasis Shifting

The relatively smooth transition from peace to war of which it is capable is the factor which recommends the current organization in times when it seems likely that one emergency will follow another for a long time to come.

The entire field of administration and logistics was one in which the Army had been forced to excel in modern warfare. In the mid-20th century fighting was becoming, for the Army, secondary to administration. Becoming noticeable in World War II, this trend received further acceleration in the Korean conflict.

Combat Men in Minority

Much to their consternation, a great many old soldiers who longed for the smell of gunpowder and the chatter of machine-guns faced the more likely prospect of having to settle for the smell of mimeograph ink and the chatter of typewriters. Officers and men who felt they were contributing nothing to a war effort if they were not on the firing line had to develop a broader view of the requirements of modern war.

Most of the Army was not in the combat arms—the infantry, armor, and artillery;

most of it was in the technical services —the engineers, quartermasters, medics, and chemical, signal, and transportation units, and in the administrative services and the headquarters which guided and supervised the tactical and service units from the combat zone to the Pentagon.

Now the Army's administrative and supply and service functions were not confined to the support of its own units; it also had broad responsibilities for supporting the other services—especially the Air Force, and in Korea the Marine Corps, and for executing the military aspects (and sometimes civilian aspects too) of the Government's Foreign Assistance Programs.

The Army was the executive agency for the Joint Chiefs of Staff for the Far East Command, a unified command; Army Forces, Far East, was executive agency for the commander in chief, Far East Command, in matters of logistics affecting more than one service. At the same time, the Army was the executive agency for the Joint Chiefs of Staff for the European Command, and it was executive agency for the Department of Defense for the Mutual Defense Assistance Program—the program for providing military equipment to allied nations around the world—and the Army was the agency for providing necessary logistical support for other members of the United Nations in Korea.

Learned Valuable Lessons

In the long run it was possible that the experience gained in supporting the other United Nations forces might provide the most valuable lessons of the whole conflict.

While the relative number of troops furnished by other members of the United Nations was small, and the supplies and services furnished them an almost insignificant fraction of the total, the real significance of United Nations participation was not to be measured alone in terms of the numbers of troops involved. The problems of coordination, negotiation, and accounting were as great as if the troop contributions had been several times as large. It took about as much paperwork to record the disposition of 10 vehicles as of 100. Negotiations for concluding satisfactory agreements on financial arrangements were hardly less involved for the settlement of accounts amounting to a million dollars than for accounts of 100 million dollars.

Aside from the demonstration of solidarity for United Nations principles which the military contributions of the other nations indicated, probably the most important result of those contributions was the experience in international logistical cooperation which was likely to prove invaluable in any future collective police action or coalition war. While it was unlikely that any future allied military effort would adopt altogether the same policies as those applied in Korea, the very fact that some experience had been gained would provide at least some standard for planning where heretofore practically none was to be found.

Patterns for Future

Above all it might be expected that in the future serious consideration would be given to flexible methods of providing and financing military equipment for allies in wartime.

In 1950 a program of military assistance—the Mutual Defense Assistance Program—already was in operation. Its purpose presumably was to build up allied strength for more effective participation in a coalition war; yet procedures had not been worked out for continuing that assistance under conditions of the war against which the preparations were being made. As a result the Korean emergency had to be met with stopgap measures. It was possible that that experience would result in the development of procedures for a continuation of wartime matériel assistance which would be even more essential in some future emergency.

Many Americans felt a sense of disappointment in seeing the Korean conflict ended on terms less than total victory. But perhaps there was something even more important gained in this demonstration of restraint in the conduct of limited war for limited objectives. *In an age when total victory was associated with total destruction, perhaps it was more urgent than ever that total war be avoided as long as the national safety and essential freedoms were not sacrificed.*

Success Within Limits

Indeed that presumably was the objective of the whole United Nations effort in Korea. If the United States were engaged in a limited war in Korea in order to forestall a third world war, then that effort was successful—so far. If the United States were engaged in Korea in order to prevent the extension of Communist domination to South Korea, then that effort, too, was a success so far.

Korea was a part of a sequence of climactic events characterizing the entire worldwide struggle commonly referred to as the "cold war." The international tension between Communist states and the free world set Korea apart from earlier punitive expeditions of the United States. On many occasions the United States had supported armed intervention—from Tripoli to Mexico, and from Nicaragua to China—but seldom had those actions carried such overtones of high politics as were found in the Korean conflict. There the whole worldwide tension between the United States and the Soviet Union was thrown into sharp relief.

US Alerted to Danger

What probably was the most important result of the Korean conflict for the United States was that it served to alert Americans to the general danger of Communist attack at a time when they were looking hopefully toward trimming their defense expenditures and commitments for logistic support for allied nations. The Communist attack in Korea consequently set in motion a long-term rearmament program by which the United States would be made more nearly prepared to meet future emergencies, and particularly to accept total mobilization should that become necessary.

Actually, it was the Chinese Communist invasion in November and December 1950 rather than the original North Korean attack of the preceding June that was the more important stimulus to the rearmament program. After the Chinese intervention, the United States did face, as General MacArthur said, an entirely "new war." "Sino-American" War would have been a more appropriate name, probably, than "Korean conflict." It was only after the Chinese intervention that the President proclaimed a national emergency—largely for the benefit of logistical expansion—and that supplementary budgets began to be prepared on a scale commensurate with the total situation.

Important Decisions Made

A series of top-level decisions followed which had far-reaching consequences for the military position of the United States. All related really to the world situation rather than to Korea alone. The first of these was that *Korea must be regarded in a worldwide setting*—as the most emphatic warning of the threat of communism in the world at large—and that Europe, the potentially decisive area in an all-out war, must not be lost sight of. Accordingly, in the bigger and faster buildup which the Chinese attack touched off, the defense of Western Europe continued to hold a high priority. Indeed, because of the attacks in Korea reinforcements were sent to Europe.

A second major decision of the Army high command was that *matériel mobilization should take precedence over personnel mobilization.* Secretary of the Army Frank Pace, Jr., regarded matériel procurement

as the controlling factor in the expansion of forces, and he resisted pressure to embark on a vast personnel mobilization program which might, in fact, retard matériel procurement and so military preparedness.

Creeping Mobilization

Another basic decision—actually a matter of national policy—was for "*creeping mobilization*," that is to say, industrial mobilization would be partial rather than total, and it would be accomplished with the least possible dislocation of the domestic economy. This was a decision based upon an assumption—shared by George C. Marshall and Robert A. Lovett, his successor as Secretary of Defense, and by Army officials—that world tension would continue for an indefinite time in the future. Too rapid industrial mobilization would invite the risks of obsolescence of weapons when they were most needed, and would make more difficult the maintenance of satisfactory matériel preparedness for the long pull against world tension which seemed to lie ahead.

This was an attempt to get away from what had been too frequently the American reaction of living from crisis to crisis with buildup and letdown. The policy of "creeping mobilization" represented an attempt to establish a plateau of preparedness which would furnish a more satisfactory continuity of strength with which to meet not only current threats but also those which would be certain to arise in the future.

Closely related to that policy was the further decision *to develop a broad industrial production base.* This put primary emphasis in the rebuilding of military strength upon long-term industrial mobilization aimed more at developing *capacity* to produce in great quantities than at immediate quantity production at the expense of greater capacity later. This decision was based upon the assumption that rapid industrial mobilization was the key to meeting emergency threats to the national security.

Keep Eyes on the Future

Under this policy orders for arms and equipment to support operations in Korea, and to build up stockpiles in Europe and the United States, were placed in such a way that long-range industrial preparedness would be best served. Smaller orders with several companies were favored over large orders with a single producer. Three production lines running on single shifts were preferred to a single production line running on three shifts because of the obvious advantage in expanding output quickly. This program required greater effort on the part of people administering it, and sometimes, perhaps, it was a little more costly, but Lovett and the officials of the Military Establishment working with him held to the firm conviction that such a policy was essential for the military preparedness of the United States.

"Creeping mobilization" and the broad production base probably were the fundamental logistical concepts of the Korean conflict. They shaped the whole war effort in treating Korea as a limited war while preparing for a total effort should that become necessary.

Budget Was Inadequate

Another decision, this one emanating from the Secretary of Defense over the opposition of the Army, had less fortunate consequences. This was the decision *to base the military budget guidelines on the assumption of an early termination of the conflict.* In effect this meant that in preparing its regular annual budgets, the Army never could make allowance for supporting operations in Korea during the period for which the budget was being prepared.

Actually, the Army could only replace ammunition and other supplies already expended; it could not buy supplies for fu-

ture expenditure. After-the-fact supplementary appropriations had to cover expenditures for operations in Korea. Not until 1953-54, as hostilities ended, did the budget catch up with the war. Perhaps these budgetary restrictions were a part of the price of limited war. Perhaps they were tribute to political realism in the circumstances. *But it seems likely that the industrial mobilization program might have benefited from a budget drawn in advance to support the Korean conflict. Such would have been more in keeping with the whole theory of long-term industrial preparedness.*

Striking a proper balance between economy and military preparedness always poses a most difficult problem. The unsatisfactory condition of American military preparedness at the time of the Korean attack undoubtedly can be traced in large part to the economy program begun in 1948. The *coup d'etat* in Czechoslovakia in February 1948 had persuaded the President and defense officials to reverse, for a time, the postwar retrenchment, and then the Berlin blockade had added to the pressures for pushing a rearmament program. By autumn, however, the international situation supposedly had eased (even though the Berlin airlift was continuing) to the extent that the rearmament program first was leveled off, and then cut back.

Buildup Was Delayed

After President Truman, in March 1948, had directed Secretary of Defense James Forrestal to prepare supplementary budget estimates, the Joint Chiefs of Staff had indicated that a supplementary appropriation of 9 billion dollars was needed. This estimate had been based "solely on military considerations," and they recognized the need to phase the program in accordance with economic and political necessity. The result had been a supplemental appropriation of 3.481 billion dollars to bring the total Armed Forces budget for Fiscal Year 1949 to about 14.5 billion.

Forrestal and the Joint Chiefs then anticipated a buildup under which the total military budget would rise to 18.2 billion (or 20 billion dollars if prices continued to rise) by Fiscal Year 1952.

But the proposed buildup did not even get into its second phase. In the fall of 1948, when discussions began on the military budget for 1949-50, the President and the Bureau of the Budget imposed an arbitrary ceiling of 15 billion dollars on the defense budget for that year; in his budget message to Congress the President reduced this figure to 14.2 billion. At least this kept the military program about at the level to which it had been expanded in the preceding year. But the ensuing months saw a drive in the Defense Department to cut even that figure materially. *As a result the Korean conflict caught the United States Army in the midst of a further retrenchment program in which manpower was being cut drastically; depots, hospitals, and camps were being closed down, and procurement and maintenance programs were being curtailed.*

Consistency Lacking

Sudden reversals, first of the earlier rearmament program, and then of the renewed retrenchment, were not calculated to encourage efficiency in either direction. It remained to be seen whether similar triumphs of economy over preparedness after the end of hostilities in Korea would undermine the plateau of preparedness which had come into being in response to the Korean conflict.

In still another sense the Korean conflict had worldwide logistical ramifications. While it is true that the attacks in Korea stimulated the sending of additional troops and supplies to Europe, it must be recognized that beyond a certain point Korea loomed as a competitor with Europe and other areas for what matériel resources were available. It was a repetition in a way of the World War II contest for re-

sources between Europe and the Pacific. In this case the going war in Korea had some advantages over potential war in Europe, but the Truman administration consistently regarded Europe as the vital area in the world picture. Then what was essentially a question of high military strategy became ensnarled in domestic politics, and outstanding spokesmen appeared to support each cause.

More Emphasis on Asia

The Eisenhower administration never denied the vital importance of Western Europe in the world strategy against Communist expansion, but it did incline toward putting somewhat greater emphasis on Asia than had been the case earlier. One of the most outstanding examples of this new emphasis was the decision *to accept the full program of arming and equipping 20 divisions for the Republic of Korea Army.*

This, too, was a decision having worldwide implications. Since no plan for a corresponding increase in the procurement program accompanied it, the decision to expand the South Korean Army to 20 divisions amounted to denying that equipment for further building up European forces or for replenishing American reserve stocks. It meant that most of that equipment was likely to be tied down in Korea permanently, where it probably would not be available for use in emergencies in other parts of the world.

If peace remained stable during the next two years or so, the full implications of that decision for Europe and other areas probably would pass unnoticed. If hostilities should break out again in Korea, then it might appear as a most fortunate decision (unless the new outbreak turned out to be the result of an attack by the strengthened South Koreans). But the possibility of emergencies elsewhere could not be ignored. This decision, like so many military decisions by their very nature, belonged in the realm of "calculated risks" —although leaders were likely to disagree on what calculations should be taken into account.

Even the significance of the ammunition shortage was less a matter of concern for support of the Korean conflict than a significant element in the big picture. Ammunition, while frequently below that authorized, or even below safety levels in the theater, never was short on the battleline except on occasions when available transportation could not keep up with the rate of fire. The really dangerous situation which the expenditure of ammunition in Korea created was the depletion of reserve stocks in the United States. Again this meant more of a restriction on defenses in Europe and other areas than in Korea.

In this connection some question might be raised as to whether the tremendous outpouring of artillery ammunition recorded at various times in Korea really was necessary in all cases. The weakening of defenses in Europe and America was a high price to pay for repeated ploughing of Korean hillsides if there were any serious doubt that such heavy barrages were making an effective contribution to local tactical operations.

Logistical support of the Korean conflict had far-reaching consequences for the American position in the Far East, and it also had far-reaching consequences in the worldwide struggle against the spread of communism. *For the United States the Korean conflict was the second greatest of her wars from the standpoint of its logistical contributions. The best measure of success in that effort would be the extent to which it might help avoid a future conflict which might become the greatest war.*

The Nine Principles of Intelligence

Brigadier General Washington Platt, *United States Army Reserve, Retired*

This article is based on a chapter of the author's forthcoming book, *Strategic Intelligence Production—Basic Principles*, to be published shortly by Frederick A. Praeger, Inc., Publishers, 150 E. 52d St., New York, N. Y. Copyright by Washington Platt

WITHOUT doubt, one of the documents which has had pronounced effects on civilized man is The Ten Commandments. For some 3,500 years this great Decalogue has persisted as a vital statement and has had a tremendous influence in improving our adherence to the principles expressed.

Yet these simple commandments are subject to all the typical criticisms which critics like to raise. There was nothing original about them when written or at any time since. They omit much that is important. They are oversimplifications and do not contain the necessary qualifying statements. They are not universally applicable, but they have persisted as living words. Why?

First, and foremost, they filled a human need. They have concentrated attention and action on some outstanding points of human behavior. They led to a common understanding among human beings. They saved thought, explanation, and argument. With all their faults they were fundamentally *useful.*

Second, and equally important for survival, with great restraint and foresight Moses *restricted himself to 10* important principles. Among the hundreds of admonitions which he was tempted to include, he concentrated on 10—few enough to be remembered and to receive continuing attention. If there had been 100 commandments they would have been forgotten within a few years.

Clausewitz' *Principles of War* have permeated our military literature and have had a beneficial effect on our military science. Yet when Von Clausewitz first submitted his ideas for consideration, he did so with marked reservations:

These principles, though the result of long thought and continuous study of the history of war[1] *have none the less been drawn up hastily, and thus will not stand severe criticism in regard to form. In addition, only the most important subjects have been picked from a great number, since a certain brevity was necessary. These principles, therefore, will not so much give complete instruction to Your Royal Highness,*[1] *as they will stimulate and serve as a guide for your own reflections.*

As currently modified and accepted in United States military doctrine these principles are:

Objective	**Mass**
Simplicity	**Economy of Force**
Unity of Command	**Surprise**
Offensive	**Security**
Maneuver	

The basic idea behind each of these principles is definite and easy to grasp. Each

[1] In place of "history of war" and "Your Royal Highness" one can substitute "intelligence" and "the present reader" for the purposes of this discussion

The proposed principles of intelligence, similar to the principles of war, form nine well-established fundamental points around which both training and practice in strategic intelligence can be concentrated

principle is of importance. It is of widespread application. In any military planning each of these principles should be given serious consideration (although not necessarily always adopted). Each is worthy of study and discussion.

These principles have been useful in teaching military science and as a checklist for the tired and busy commander or staff officer in combat. Most of all they have served to promote a common understanding. They make for clarity of expression. They facilitate discussion and avoid many misunderstandings. They help to build a common doctrine.

With all this they are properly flexible. There is nothing to say, for example, that a military plan *must* involve the principle of surprise. However, these principles are so drilled into the military man—from the squad leader to the army commander—that he can hardly forget them. If, as an illustration, in the presence of the enemy a unit commander neglects security (one of the principles) in a map problem, in a field maneuver, or in combat, he knows that the burden of proof is on him.

It is easy to criticize and even to ridicule the principles of war. They are not coordinate or mutually exclusive. They have differing points of view. They are not universally applicable. They are occasionally misunderstood by those students of military science who fail to think.

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Overlooking these shortcomings, experience has demonstrated that the principles of war are sound, important, and practically helpful over a very wide range of instruction and of military situations. They *work*.

Is it possible to develop *principles of strategic intelligence* similar in their field to the principles of war? Is it possible in formulating *principles of intelligence* to stick to those elements of strength, especially in simplicity of presentation, which have proved their practical usefulness in presenting the *principles of war?*

If so, we could obtain with great economy, powerful aids to the development of competence in strategic intelligence, and toward a common understanding and doctrine within the intelligence community, with particular reference to the *principles of strategic intelligence production.*

Profiting by such considerations, we submit *The Nine Principles of Intelligence,* admitting they possess all of the shortcomings mentioned above, but believing they deserve some of the same claims to serious attention from the intelligence community. These principles pertain primarily to strategic intelligence production.

Benefiting by favorable experience in using the *principles of war,* the *principles of intelligence* outlined here are influenced by the following guidelines:

1. Each principle must be of importance and widespread application.

Those who discuss the principles of war glory in showing that they have useful application in discussing battles from Sun Tzu (500 B. C.) to Hannibal, to Napoleon, to Patton. No claim is made that they are of universal application. Situations arise where some principles are not helpful.

2. They must be real *general* principles, guides for action in many situations.

For example, the *principles of war* are not framed in terms of a matter-of-fact checklist even though such checklists are

of value for other purposes. Therefore, not included in the proposed *intelligence principles* are: sociological factors, political factors, economic factors; nor is a breakdown such as persons, organizations, or physical factors included. Factors are not principles.

3. The basic idea behind each principle must be expressible in one word or in a simple three-word phrase.

This helps the memory, facilitates use and common understanding, and is an outstanding characteristic of the *principles of war* as used in United States military literature.

4. Flexibility, simple descriptions, and an absence of legalistic or philosophical technicalities are essential.

Remote contingencies and occasional exceptions are purposely omitted in favor of concentration on the simple outstanding ideas. If the widespread use of the *principles of intelligence* will produce the benefits which have accrued to military science from the older principles (a concentration of attention on matters of outstanding importance and a resulting unity of doctrine), then the fear of incurring for the *principles of intelligence* the same criticisms that have been leveled at the *principles of war* is not important.

The proposed principles, below, are believed to be always worthy of consideration and frequently worthy of adoption in any case of strategic intelligence production, whether in planning a project, writing a paper, or discussing the results.

The language used to describe each principle is intended to convey the basic idea, not to be exhaustive or logically rigorous. In this it follows the general level of the current discussions of the *principles of war*.

PURPOSE

The principle of the *purpose* permeates every aspect of every intelligence project. The form of attack on every intelligence project must be influenced by *the use to which it is to be put.*

Purpose governs the timing, the extent of coverage, and the language and mode of treatment. The immediate purpose of a paper is often to solve what is commonly stated as "the problem," as amplified in the terms of reference. A larger purpose may be to use the solution of the problem as a guide to policy or action.

DEFINITIONS

The principle of clear *definitions* is essential to intelligence production. Experience shows the great importance of making clear exactly what is meant by each important word and idea, especially those used in the title, terms of reference, and conclusions.

Clear definitions make for clear thinking. They concentrate effort on what is really desired and prevent misunderstandings. Definitions are particularly needed in strategic intelligence which deals in such commonly used terms as capabilities, vulnerabilities, intentions, and near, future, and unconventional warfare.

EXPLOITATION OF SOURCES

The principle of the *exploitation of sources* requires a thorough working of all sources which can throw light on the study. What are the probable capabilities and limitations of each source? To what extent do they confirm or contradict one another? The more varied the sources the better the chance for effective cross checks. With varied sources the foundations of the paper are broader, the perspective is deeper, and the chances of serious error are fewer.

SIGNIFICANCE

Bare facts must be given meaning. The search for significance should be vigorously pushed and the significance of facts and statements should always be shown. Often this can be done by comparing the fact given with a corresponding fact at the

same date last year or with a similar fact in the United States. Pointing out the significance greatly increases the usefulness of a fact. Facts seldom speak for themselves.

CAUSE AND EFFECT

The tracing of cause and effect is an excellent means for understanding the workings of any situation and preventing misunderstandings. Such a study often helps in the discovery of the key factor. Pointing out causes also facilitates the use of the intelligence at the policy level.

SPIRIT OF THE PEOPLE

Any sound intelligence estimate must recognize the fundamental influence of the spirit of the people, including such background considerations as culture, religion, national folklore, and all those ideas learned from childhood on. It is important to distinguish between a vigorous, aggressive, optimistic group full of the spirit of progress and a tired, disillusioned, pessimistic group. Spirit includes morale and the all-important will-to-win. It covers fanaticism, patriotism, pacifism, and defeatism. "The temper of the people" is sometimes used as an equivalent term.

An unusually aggressive spirit may multiply the capability which would ordinarily be expected from a given situation by 10, while a defeatist spirit may multiply the same capability by only one-tenth.

TRENDS

The principle of *trends* is based upon the movement and patterns in human affairs and requires an estimate of the probable direction of change. Is the item under consideration increasing or decreasing and at what rate? Is the trend permanent, cyclic, or horizontal? Trends are closely tied to forecasting which is such a vital part of intelligence production. A study of trends attempts to penetrate the fog of the future.

DEGREE OF CERTAINTY

The principle of *degree of certainty* requires consideration of three similar but slightly different factors: reliability of statements of fact, precision of quantitative data, and probabilities of estimates and conclusions. In each case the degree of reliability, precision, or probability may be high, low, or in between, and this variation is important. One of the essential responsibilities of the intelligence production officer is to determine by critical study the reliability, precision, or probability of each important element and to make this clear to the reader.

CONCLUSIONS

Conclusions are essential to the full usefulness of many intelligence papers. They determine whether the purpose is achieved. Because often only the conclusions are read and remembered, great care must be taken to ensure that they convey the outstanding points briefly and clearly without being subject to misunderstanding.

Implementation

These *Nine Principles of Intelligence* are submitted in the present crude and immature form for general discussion, criticism, and revision. After such consideration it is hoped that the intelligence community will not wait for perfection of concept or of language, but will adopt and use them in their present form. Further polishing will come from use, as was the case with the *principles of war*.

Judging by the present state of intelligence activities, and the lack of a basic doctrine, and judging from the experience of the *principles of war*—the *principles of intelligence* hold promise of real usefulness in strategic intelligence production.

These principles form nine well-established fundamental points around which training and practice in strategic intelligence can be concentrated.

ЧТО ЧИТАЕТ СОВЕТСКИЙ ОФИЦЕР?

(What Does the Soviet Officer Read?)

Walter Darnell Jacobs

ONE of the requisites to professional competence in any field is a continuing acquaintance with contemporary developments. Apparently, the most efficient manner by which this acquaintance can be made is by reading the professional press.

In our time it seems that the professional presses are operating on a 24-hour per day schedule, turning out histories, critiques of recent events, examinations of broadly accepted theories, results of research, plans for the future, and many other types of studies. In no field is this truer than in that most inexact of professions, the military.

A casual look at the reading rack of a company dayroom, of a regimental officers' club, or the newsstand in a large military headquarters will reveal the vast amount of literature being produced in the United States on military subjects.

Aside from official Department of the Army publications, the professional soldier is offered large numbers of commercially produced monographic publications and periodicals. Thus the military reader is able to be as familiar with the exploits of Pelham in northern Virginia as he is with Mannstein's grand design on the Eastern Front. He is able to be a master of the operation and functioning of the US Rifle, Caliber .30, *M1*, and to know General Wyman's views on the organization of the army of the future. He is able to study new developments, such as the guided missile and tactical atomic weapons, which complicate an already complicated picture.

The aim of the professional competency thus gained is, of course, success in battle. Aside from its deterrent value, the American Military Establishment exists solely to accomplish the defeat of any possible future enemy of the United States. Armies of other countries exist with a similar mission as refers to their own country.

Prime Emphasis on USSR

Theoretically, any non-American army is a possible future foe of the United States. Political and other factors are so arranged, however, as to indicate that some armies are much more likely to play that role than others. Specifically, the armies of the Communist bloc present, currently, the greatest threat to the security of our country. This fact is reflected in the content of the output of the American press.

Conversely, the Soviet professional soldier is much more likely to be interested in American military developments than he is, say, in the Spanish Military Establishment. (Although, of course, the efficient military planner will not neglect military developments wherever they may take place.) Thus the American military reader may wonder how contemporary military developments are presented to the Soviet professional military man.

There are available in English a number of volumes on the general Soviet

The periodical press is a basic weapon in the Soviets' effort to assure that their soldiery has a professional competency and a high level of knowledge of the enemy, his equipment, tactics, and his capabilities

military picture, for example, the works of Garthoff, Dixon and Heilbrun, Guillaume, Basseches, Kerr, Kintner, and Stockwell. Soviet periodical literature on military matters has, however, not been the subject of extensive American investigation. (There are exceptions of course. Hanson Baldwin conducts an informative column in the *New York Times* based largely on reading of the Soviet periodical press. The *Military Review* does a competent job of reproducing pertinent Soviet writings. *The Bulletin of the Institute for the Study of the USSR* presents thoughtful but irregular analyses of Soviet developments. *Army* presents infrequent articles on Soviet military activities.)

Reasons for Shortage

This shortage may have several causes. The shortage of military writers competent in the Russian language may be a contributing factor, as may be the general lack of readily available Soviet military publications in American libraries outside of Washington and New York.

All publications in the Soviet Union are, technically at least, of an official nature. That is to say, nothing is printed without the knowledge and sanction of the government. Even the fact of a controlled press, however, redounds to the advantage of the non-Soviet professional reader since the government issues three bibliographical guides to the publications of the Soviet Union.

These guides cover, in turn, books, magazine articles, and newspaper articles. They are entitled *Knizhnaia Letopis' (Book Chronicle)*, *Letopis' Zhurnalnykh Statei (Chronicle of Magazine Articles)*, and *Letopis' Gazetnykh Statei (Chronicle of Newspaper Articles)*. Each is issued weekly and each contains a section entitled *Voennoye Delo (Military Affairs)* which lists all publications for the period covered.

While the chronicles of periodical literature cover the entire range of Soviet publications, the interest of the professional soldier is directed mainly toward exclusively military publications. The intention here is to consider periodical publications of a purely military nature by an examination of selected items published on the Union level in the late summer of 1956.

Official Military Paper

The all-Union military publication with which Western readers are most familiar is *Krasnaya Zvezda (Red Star)*. This newspaper is published daily in Moscow. Beneath its front page flag it proclaims itself to be the "Central Organ of the Ministry of Defense of the USSR." The motto "For Our Soviet Homeland!" appears above the flag, while the Communist slogan featured by *Pravda*, *Izvestia*, and others, "Proletarians of All Countries, Unite!" appears less prominently.

Red Star normally appears in a four-page edition. The front page carries a two-column, upper-fold editorial on the left. For the period of the first week of August 1956, the editorials dealt with the following subjects: "The Most Important Goals of Propaganda and Party Organizations," "Master the Art of Forcing Water Barriers," "Improve the Marksmanship Training of Rifle Units," and "Army and Navy Theaters." (The latter editorial refers to entertainment type theaters.) One front page during the week varied the makeup a bit and printed a six-column photograph

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Mr. Walter Darnell Jacobs is the author of "A Soviet Attack Capability," which appeared in the December 1956 issue of the MILITARY REVIEW. *A major of Infantry in the Inactive Reserve, he was on active duty in the Army from 1942 to 1953. He is a graduate of the Army Language School (Russian Course) and received the Master of Arts degree in Political Science from Columbia University as well as the Certificate of the Russian Institute in 1956. Mr. Jacobs is now associated with the Library of Congress and is responsible for the Exchange Program with libraries and institutions in the Soviet Union.*

of leading officials at the dedication of the new Lenin stadium in Moscow. All officials were listed in the caption by name without title.

Develop Party Line

The first page of this issue, and a large part of the second page, were given over to the speech of "Comrade" Khrushchev. In the speech, Khrushchev referred several times to *"nash vozhd' i uchitel'"* Lenin. This phrase (our leader and teacher) previously had been applied quite universally to Stalin. Since the initiation of the anti-Stalin drive it has appeared more and more frequently in connection with Lenin.

Khrushchev also referred at some length to the activities of the farmers in the eastern grain areas—a theme dwelt on quite frequently in the issues of *Red Star* examined. He discussed the situation concerning the Suez Canal, saying that certain circles should remember, "It (war) is easier to start than to end."

The inner two pages of *Red Star* customarily are devoted to matters of more specific military nature and, occasionally, to the publication of articles and letters from active officers. One such letter from Lieutenant Colonel A. Zharikov called for grammatical speech in the army. Colonel Zharikov took to task a drill sergeant who counted cadence as *"Rias, dva, tri"* rather than *"Raz, dva, tri."* (The sergeant's use of *rias* was explained as a striving for euphony somewhat like the American "Hut, two" in place of "One, two.")

ПРАВДА
Орган Центрального Комитета
АМЕРИКАНСКАЯ ВОЕННИЦИНА НА СЛУЖБЕ ГИТЛЕРОВСКОЙ ТИРАНИИ
ИЗВЕСТИЯ
СОВЕТОВ ДЕПУТАТОВ ТРУДЯЩИХСЯ С С С Р
Народы Азии в борьбе за мир

Even the "nonmilitary" press features political discussions with strong military overtones. The main article in this particular issue of *Pravda* (above) was titled: "The American Soldier Is Following the Path of Hitlerian Tyranny," while *Izvestia* (below) featured "Asiatic Nations in the Battle for Peace."

Some other inner page stories examined included a report by Major General G. Krivokhizhin on "The Reserve of Temporary Officers," and an approbative report by Lieutenant Colonel N. Poltorakov on the Moscow store *"Voennaya Kniga"* (Military Books).

From Tactics to Sports

The inner pages also publish more technical articles. In the period examined Lieutenant Colonel M. Verbinskii published a report entitled "Tanks Lead Infantry" and Lieutenant Colonel G. Gloriozov described the development of a ground sound-locator device.

The back page is devoted to sports, features, and reports from the international scene. In early August the *Spartikad* (a sort of national olympics) was taking place in Moscow and a large amount of space was given to coverage of that event. The novel, "On the Track of the 'Green Panther'," by I. Vakurov was appearing serially. This is a novel of World War II and the Green Panther proves to be a German tank.

The international coverage for the period was mainly of events in Egypt and the application of "political pressure" by London and Paris. There were short reports on the American budget, German newspaper comment on the conduct of United States troops in Bavaria, and the activities of the British Army on Cyprus.

Red Star is supplemented by newspapers published by military districts, armies, divisions, and even by regiments and smaller units. These smaller publications take their lead from *Red Star* and many of them, according to reports, duplicate it in appearance. These facts and the further fact that *Red Star* frequently is the only periodical publication available to its readers explain its somewhat general coverage, while the emphasis is, of course, on military news.

Several monthly magazines on military subjects appear in the Soviet Union. There are, for instance, the following branch publications, among others: *Tankist (The Tanker)*, *Artilleriiskii Zhurnal (The Artillery Journal)*, *Vestnik Vozdushnogo Flota (Herald of the Air Force)*, *Voenno-Inzhenernyi Zhurnal (The Military Engineering Journal)*, *Voennyi Sviazist (The Military Communicator)*, and *Tyl i Snabzhenie Sovetskoi Armii (The Rear and the Supply of the Soviet Army)*.

Three Monthly Journals

The three most important monthly publications of a general military nature appearing on the all-Union level are *Voennyi Vestnik (Military Herald)*, *Voennye Znaniia (Military Knowledge)*, and *Voennaia Mysl' (Military Thought)*. The latter publication carries the inscription "For Generals, Admirals, and Officers of the Soviet Army and Navy only" and is hence unavailable for examination in American public libraries. *Military Knowledge* is a popular publication of the DOSAAF (Voluntary Society for Cooperation With the Army, Air Force, and Navy) while the *Military Herald* is "the combined arms monthly journal of the Ministry of Defense of the USSR."

The *Military Herald's* July issue led off with a six-page editorial calling for an improvement in marksmanship training, thus echoing the *Red Star* editorial mentioned above. Among articles contributed by active officers were: "The Reinforced Rifle Company in Reconnaissance Detachments," "Planning the Private Duties of the Commander" (by Lieutenant General Vashurin), "Training of Crews of Self-Propelled Artillery in Night Firing," "The Unit Commander and the Club," and a rather lengthy article by Major General Anisimov on the training of cadets.

Among the articles on tactics were: "Actions of the Rifle Company in the Liquidation of Air-Landed Enemies" and "The Antiaircraft Machinegun Battery in Defense Actions." There were also some suggestions on improving marksmanship in various weapons and some devices designed to improve training efficiency.

The review of foreign military activities included a seven-page article on United States Army rockets. This review had several line drawings accompanying it, a

rather unusual departure. There was a drawing of the *Corporal* (or *Kapral*) in firing position and another of the *Nike* (or *Naik*) being fired. This feature was followed by a short article, based on the 28 January 1956 issue of the *Army, Navy, Air Force Journal*, concerning the "Military College of the North Atlantic Bloc."

The final features of the July *Military Herald* consisted of book reviews, news from the "People's Democracies" and the Chess Department. The book reviews concerned a publication on the Crimean War and another on Military Topography. The "People's Democracies" section contained a tirade against Chiang Kai-shek and his American support.

Translations Offered

The back cover of the July issue of *Military Herald* had been taken by the book store *Voennaia Kniga* in Moscow. The advertisement offered a number of books translated from French, German, and English. These included *The Military Doctrine of the USA* by D. O. Smit (to transliterate from Russian into English) which the advertisement stated was translated from German. Translated from English were L. Montross' *Cavalry of the Air;* S. S. Fuller's *Second World War, 1939-1945;* Maltop and U. Barret's *Guide for Commanders of Infantry Units;* and K. U. Getlend's *Development of Guided Missiles.* (It is emphasized that the names cited here have been transliterated and that the titles have been translated from the Russian.)

In contrast to the *Military Herald*, the DOSAAF publication *Voennye Znaniia (Military Knowledge)* is printed on a somewhat higher grade paper and in a format a bit larger than that of *Army.* It has numerous half-tone illustrations and a cover in color.

"Peaceful" Artillery

Military Knowledge for July had a rather ambitious article on the applications of atomic energy. The author stated that "our country leads all others in the use of atomic energy for peaceful uses" and went on to describe how the Soviets were developing atomic artillery.

An article on Soviet aviation traced the history of the air arm, said the *Tu-104* jet transport was already obsolescent, and gave credit for all things positive in Soviet aviation to "our leader and teacher, Vladimir Il'ich Lenin." Another article on the need for discipline in the army cited Lenin to the effect that "Iron military discipline is necessary in order to gain victory."

There followed an article entitled "The Use of Rocket Weapons in the Navy" which proved to be a comprehensive investigation of rockets and guided missiles of all types. (No credit was awarded to Lenin for the development of these weapons.) There were descriptions of the following (consistently transliterated) weapons: *Regiules, Princeton, Khenkok, Tanin, Kask, Karbonero, Lun, Talos, Ter'er, Missisipi, Boston, Raskal, Petrel, Sparrou,* and *Felkon.*

Some of the other articles in the July issue dealt with night firing of small-arms weapons and emergency repair actions in areas hit by atomic attack.

Faults Are Apparent

This cursory examination of the Soviet military periodical press for a part of the summer of 1956 cannot presume to be definitive or exhaustive. It does, nevertheless, indicate certain virtues and faults inherent in the Soviet press and in the Soviet military system itself.

Among the faults the following can be listed, although others are certainly discernible:

1. The political undertone of all Soviet writing injects itself into military writings.

This is evident in the period under examination especially in the repetitious citing of Lenin. This trend alone seems to indicate that the anti-Stalin campaign has had no essential effect on the character

of the Soviet system but has only worked a change in that Stalin has been replaced as the oracle of communism. Stalin is denigrated but the system demands the symbol of a "leader and teacher." That the current leader is Lenin, who is dead, and not Khrushchev or some other living leader is accidental and probably temporary. In any event, the political tone of the military writings indicates that integral, totalitarian governments, including the Communists, are unable to approach any problem without injecting nonproductive political prejudices.

2. The similarity of content of all the publications examined would seem to tend to cause a conformity among readers.

This would probably be the case in spite of calls for initiative. The very calls for initiative, in fact, indicate that it is in short supply in the Soviet military system. The repeated call for improvement of marksmanship training, while in itself a laudable professional undertaking, could, if repeated often enough, cause subordinates to emphasize such training at the expense of other necessary skills.

3. The use of military publications for nonmilitary purposes could cause resentment among readers.

For instance, *Red Star* has devoted much space to the efforts of the recruited farmers in the eastern areas. (It is, of course, quite reasonable to argue that the grain program is military in nature in the integrated Soviet society, as indeed it is. It has, in fact, been conducted along military lines with several units being discharged in the east and transformed into *Sovkhozi* in which the *Sovkhoz* chairman was the same person who was formerly the military unit commander.) Although their protest may not be vocal, as yet, professional soldiers must resent being harangued about crop quotas. The same resentment must apply to the continual stressing of the role of party organizations and agitators within the army; although resentment on this point must clearly be of the quiet desperation type.

Among the virtues of the military press the following can be mentioned:

1. The volume of publications and their variety (as to means of presentation and periodicity) give military and governmental leaders excellent vehicles for communication with subordinate leaders.

New developments and policies can be quickly disseminated to the troops. The emphasis in the publications examined on guided missiles and atomic weapons is an excellent example in point. The fact that the Soviet Army has a daily newspaper which is widely circulated and widely imitated and reproduced can be a source of great efficiency in training.

2. Active officers are provided a means of professional expression.

The participation of officers of all ranks in the writing of articles for *Red Star* and *Military Herald* is not equalled in the military press of other countries with which the writer is familiar. This participation is limited, of course, and may in some cases be ordered. Its very existence, however, must be classed as a virtue because it directs effort toward professional competency both among the writer and the reader.

3. The Soviet military press is making an intensive effort to keep its armed forces abreast of developments in the armies of countries outside the Communist bloc.

The task is easier for Soviet authors than it is for our own simply because the Western press is freer and supplies more information of value. The rocket and guided missile articles cited were based almost entirely on research done in American commercial publications. At the same time, the official Soviet military book store is circulating translations of Western military writings. There is no similar circulation in the West of Soviet military writ-

ings. Obviously, the advantage here is with the Soviets because they have little to fear from Western writers who are concerned solely with accuracy and a lucid presentation of their subject while Soviet writers are compelled to inject political arguments. That fact alone, however, is not decisive. Valuable lessons are to be gained from reading Soviet military writings. (For example, the injection of political polemics in such an article as "The Reinforced Rifle Company in Reconnaissance Detachments" would be quite gratuitous and apparent to the reader.)

Indirect Pressures

Are any pressures brought to bear on the Soviet officer to force him to read military literature? There is a great deal of circumstantial evidence to support an affirmative reply to this question. At least before and during World War II (and there is no reason to believe the situation is different today) Soviet officers were expected to be acquainted with the *Military Herald* and articles from that source frequently were discussed at regimental and other meetings. *Red Star* is available, under optimum conditions, for display on unit bulletin boards and for distribution to unit reading rooms.

A more indirect pressure is the fact that the government controls the press (to include distribution of presses, ink, and paper). The great number of military publications is an indication of the value the political leaders place on the military periodical press and evidence of the fact that the government expects a response to its efforts in the field. Finally, the frequency of appearance of articles by high-ranking officers and by "Heroes of the Soviet Union" probably in itself exerts a not inconsiderable compulsion on officers to read the military press.

Success in battle is based on a number of factors, of which pristine professional competency is merely one. The others may, at times, be decisive. Victory is only rarely gained without a high level of knowledge of the enemy, his equipment, tactics, and capabilities. The Soviet Government is making a determined effort to assure that its soldiery has a respectable professional competency and a high level of knowledge of the enemy. Its periodical press is a basic weapon in that effort.

As the Communist technique has unfolded, we have learned that it is an important element of Communist strategy to undermine the strength of a nation by creating confusion in the minds of its citizens. Planned confusion is the partner of defeat. Nothing serves Moscow's purposes any better than to have the citizens of the United States become confused about the real intentions of the Kremlin, confused about the policies we should pursue, confused about whom to trust and whom to fear.

* * * * *

Clear thinking by Americans who are well informed and fully aware of what is at stake today is the only effective antidote for all this Communist propaganda and effort designed to create confusion, neutralism, doubt, indecision, and irresolution. There comes a time when indecision with its attendant delay robs men of any further opportunity to choose a free course.

Secretary of the Army Wilber M. Brucker

Teamwork and Artillery Accuracy

Colonel A. R. Del Campo, *United States Army, Retired*

ALL military men are aware of the importance of teamwork in securing victory. Unfortunately, however, not every member of the team is always fully aware of the importance of the part he plays. In fact, in many cases he is not aware of exactly what part he does play.

Certainly, this is true in the case of many of the people in the diversified activities connected with the problem of delivering artillery fire accurately against the enemy. Many of these people would be astonished to learn that their performance had any effect, good or bad, on the accuracy of artillery fire. Those who do know that there is an effect often are not as well informed of its importance as they should be.

Who are these people whose actions can influence artillery accuracy? For example, large numbers of Transportation Corps personnel, in many cases without knowing it, play a critical role in overwater and overland shipping activities. So do many Ordnance ammunition storage and supply personnel, both civilian and military, in the United States and in the theater of operations. Artillery train personnel and Artillery ammunition supply officers are similarly involved, but in most cases they have some knowledge of their influence on accuracy. American industry probably has the most important role, and by and large is aware of it. Nevertheless, it may be questioned that the problem of accuracy is as real to manufacturers as are the problems of delivery dates and cost figures.

The purpose here is to instill or intensify in the wide range of persons mentioned above a full awareness of their part in the game, as long as it is being played according to current logistical policies and tactical doctrine. The second purpose is to discuss possible modifications in present policies and doctrine, attempting to show advantages and disadvantages of each possibility.

As a concrete basis for discussion, consider a reasonably representative battlefield situation. In Figure 1A the infantry is attacking and one element, a rifle company, has as its next objective the ridgetop E, where the enemy is well dug in. One battalion of 105-mm howitzers is laying down a barrage or "concentration" on E, to cover the infantry advance to within assaulting distance.

As the infantrymen approach F, 150 yards from E, they are pleased and encouraged by the artillery support. The ridge is a vast turmoil of smoke, dust, geysers of dirt, and noise. It is hard to believe that anyone could live through such pandemonium. But the doughboys know better. They know that the enemy is under shelter, that he very probably will have suffered few casualties, and that he will come out full of fight when the concentration ends. Nevertheless, the infantrymen are grateful for the fact the artillery fire at least is keeping enemy heads down, giving our men a fairly safe advance all the way to A, the assault line, which is 120 yards from E.

Ahead, shells are exploding approximately according to the dispersion shown in Figure 1B. The curve is the well-known "normal probability" curve, and the areas shown in the vertical slices are representative of the percentage of rounds falling within each 30-yard zone measured from the center of impact of the artillery fire. The percentages are shown explicitly. Each of these zones, defined according to these expected percentages, is called a *Probable Error* (PE).

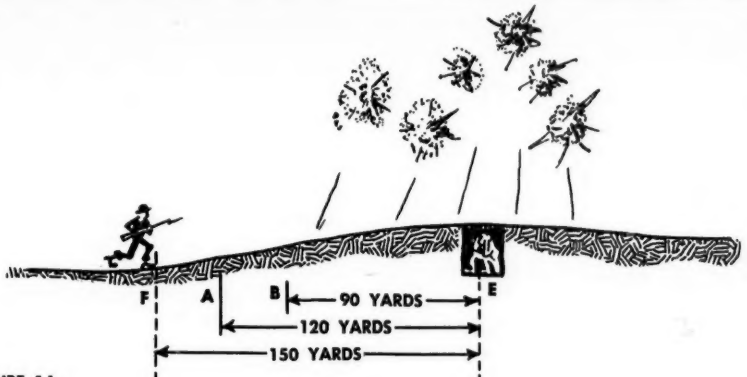

FIGURE 1A.

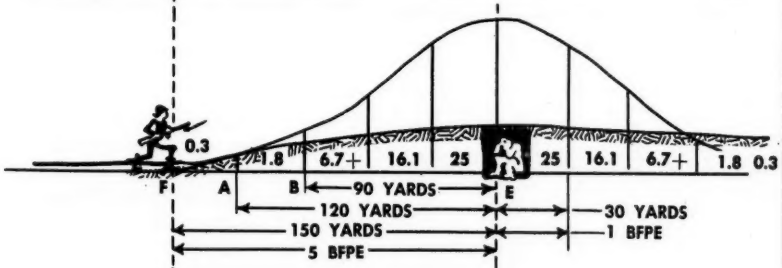

FIGURE 1B. PATTERN OF ROUNDS OF LOT NUMBER 1 SHOWING PERCENT OF ROUNDS FALLING WITHIN EACH RANGE PROBABLE ERROR ZONE.

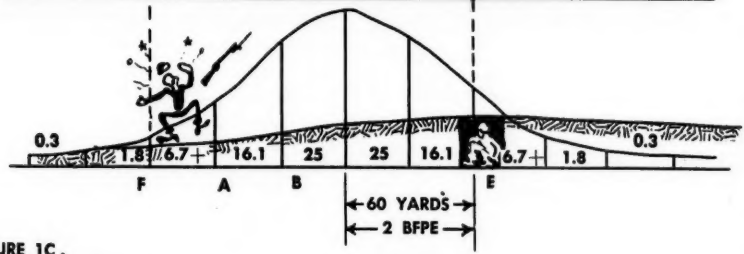

FIGURE 1C.

PATTERN OF ROUNDS OF LOT NUMBER 2 SHOWING PERCENT OF ROUNDS FALLING WITHIN EACH RANGE PROBABLE ERROR ZONE.

Three Kinds of Errors

There is a distinction among three kinds of probable errors. First there is the *Firing Table Probable Error* (FTPE). For the 105-mm howitzer system, this was determined about five or six years ago, using a then representative "lot" of ammunition. This FTPE describes the dispersion measured in firing ammunition of that lot from a slightly worn howitzer. Current lots, due chiefly to improvements in manufacture, are noticeably more precise.

At present, the actual *Lot Probable Error* (LPE) at the range assumed in this example probably will be around 20 yards, or about two-thirds of a FTPE.

Finally, there is what can be called a *Battlefield Probable Error* (BFPE). The author believes that this is necessarily greater than the LPE for several reasons. In the first place, there are 18 howitzers firing, instead of the one used in determining both the FTPE and the LPE. True, the artillerymen have calibrated these 18 guns to make their fire patterns coincide, but this cannot be done perfectly. It must be presumed that some of the 18 howitzer tubes have a considerable amount of wear. Finally, there is bound to be an error of a few yards in placing the center of impact of the fire pattern on E. The author believes it reasonable, therefore, to increase the LPE on the battlefield by approximately 50 percent, increasing the probable error to about 30 yards for the BFPE. (That this happens to be the same as the FTPE must be regarded as a coincidence, helped by the author's desire to use round numbers.)[1]

As the infantrymen in the sketch approach F they are completing their deployment into assault formation. The company commander, being somewhat cautious, adheres strictly to the conservative side of "the book," intending to signal for a lifting of the artillery fire as our men reach A, rather than B.

Occasionally a large fragment comes flying back, and the men cringe at the personal sound of its angry whine. Just the same, they close on the fire. They know that once the artillery stops shooting, the enemy will come out of his holes and fire on the exposed attackers with rifles, machineguns, and mortars. They also know that the nearer to the enemy they can get during the artillery support, the fewer will be the casualties in the final advance up the slope.

Suddenly, shells begin falling in their midst! Their own artillery is shelling them! See Figure 1C.

What happened?

What happened was this: The artillery battalion, having used all the ammunition from one lot, inadvertently continued its fire with ammunition from a new lot without any change in elevation of the howitzer. And, at that unchanged howitzer elevation, the center of impact of the new lot (call it Lot Number 2) was 60 yards (or about three LPE's) short of the center of impact of the original lot.

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[1] A study of Infantry School literature indicates the infantry doctrine of approach to within three or four FTPE's is based on what appears to be the belief that the FTPE is duplicated on the battlefield. If this is the case, and if the author's reasoning just presented is sound, the doctrine would have been rash by about a 33⅓ percent margin if it had been employed with the lot used to prepare the firing tables. It is only the above-mentioned improvement in production quality which brings the performance of the ammunition *on the battlefield* to the level expected by the training literature

The result is that the fire is now falling as shown by the probability curve in Figure 1C. (Note that Lot Number 2 is *just as good* as Lot Number 1, in that it has the same dispersion, or probable error.)

The enemy still is receiving about three times as much fire as the attackers, but they are caught in the open, so are suffering greater casualties. Worse yet, they are undergoing a severe drop in fighting power because of their shock and dismay at being victims to their own artillery.

Could Have Been Worse

Matters *could* have been worse. The new lot could have had an average range even shorter than this example, and the resulting casualties would have been frightful. However, the probability of this more extreme case would be remote because in any given pair of lots taken at random there is a 50-50 chance the second lot will be in error on the *far* side. Furthermore, of the 50 percent possible short lots, *most* would be no worse than the example.

On the other hand, if the infantry commander had been as aggressive as he should be according to doctrine, he might have been planning to assault from B, rather than A, and his men might have been caught even deeper inside the fire pattern.

(At this point in the discussion the author wishes to apologize to artillerymen and reassure infantrymen. He does not really believe that our artillerymen would make such a mistake as to fire Lot Number 2 without making some type of correction. He employs this device as an emphatic way of pointing out to all in the chain of supply how important it is to fire all of one concentration from one lot, and, therefore, how important it is to supply big enough lots. Artillerymen can be trusted to take appropriate measures to prevent the accident illustrated in Figure 1C, but the measures would undesirably reduce the effectiveness of the fire support, while using more ammunition.)

It is time to examine the problem from manufacture, through supply, through overseas and overland shipments by the Transportation Corps, and through the Ordnance and Artillery supply chain, to the firing personnel. Space permits only a few examples of how *circumstances keep trying to bring about the disaster described*, and how special efforts to minimize or eliminate such circumstances must be made all along the line.

Emphasis on Quantity

Unfortunately, in many cases the individual's effort toward this objective is an unsung and unhonored one. If every effort toward accuracy is defined as a striving for quality, then all along the chain of supply choices constantly must be made between quantity and quality. And all too often the individual is strongly biased toward quantity because usually this is taken as the principal measure of his performance.

On the other hand, there will be times when no choice is possible; when production or movement of ammunition in quantity is paramount to all other considerations. The present system can tolerate a few such instances of the unavoidable kind.

The reader must judge for himself whether the system can be made to work sufficiently well to be retained and strengthened. For those who would prefer to abandon the present doctrine and try another, possible alternatives, with a brief glance at advantages and disadvantages, will be discussed later.

Field artillery accuracy depends on a joint effort on the part of procurement, manufacture, supply and transportation personnel, and good management within the artillery battalion—all a part of the same team

This discussion considers only a part of the artillery fire problem. In many cases, the mission is one of harassing or interdicting fire, where the safety of infantry is not immediately involved. Also, research now under way will not be discussed in this article which limits itself strictly to cases involving the safety of infantry and the effectiveness of fire support for them when they need it most, that is, when close to the enemy.

Despite research and care in manufacture, however, differences of some magnitude will always exist. It is simply a "fact of life" that mass-produced items are not exact replicas of each other. Development tests of the prototype of the model of ammunition fired on ridgetop E were carried out at a proving ground many years ago. Test results were examined, and the verdict was that the ammunition design was a reasonably good compromise among range, lethality, manufacturability, storability, dispersion, cost, and other factors. These test results and additional rounds were then made available to the Artillery Board which subsequently indicated approval. This acceptance finally was made official by the headquarters now known as CONARC, and by the Department of the Army. The design was then released to production.

If every round could be produced and supplied to be exactly like every other round, to the nearest millionth of an inch and the nearest millionth of an ounce, any such error in accuracy as shown in Figure 1C would not be possible. (The propellent would have to be similarly precise in composition and dimensions.)

Actually, the situation is still more complicated. The assembled round is a combination of many components and materials. For the assembled round to be accurate to the nearest millionth, the precision of its constituents would have to be controlled in terms of tenths of millionths.

Realistic Requirements

Since this is absurd, we are forced to start at the other end. At present prices, Ordnance can expect the sub-supplier to hold to precisions expressible as tolerances of thousandths, or at best ten-thousandths of an inch. That is to say, that in any lot of subcomponents, individual items may differ by several ten-thousandths, or even several thousandths of an inch. Then, since these are rapidly assembled or mated to other subcomponents with similar spreads of dimensions and to propellent with its own variations, the complete rounds will tend to differ from each other by noticeably larger disparities. These disparities show up on the battlefield as round-to-round scatter, or dispersion, in range. This is describable in terms of "probable errors" and by the bell-shaped curve of Figure 1B.

When a lot of ammunition thus produced is compared to another lot similarly produced by other suppliers, or even by the same supplier, the two *average ranges* (or centers of impact) will differ by some amount, usually small and unimportant, but sometimes even larger than that shown between Figure 1B and Figure 1C. Thus it is necessary to establish a policy. Conceivably, it might be proposed that Ordnance could so tighten up on specifications and tolerances all along the line that all lots would be practically identical. However, the cost of ammunition probably would climb by at least a factor of 10. Realizing that the Army shot over 3 billion dollars worth of artillery ammunition in Korea, it is apparent that some other solution must be sought.

Start With Large Lots

The present solution is to use current standards at current costs. Since this results in differences between lots, the artillery doctrine is to try to fire close-in concentrations with single lots, if possible. To attempt to make this possible, the chain

of supply must exert great efforts to keep lots intact. Since *every* one of the many loadings and unloadings of ammunition on its way to the front presents an opportunity for breaking and scattering each lot (with consequent mixing), even herculean efforts in the chain of supply will only partly succeed, and only a small fraction of the original lot will reach the firing battalion. Therefore, to ensure that the final fraction contains enough rounds for effective fire the lot must be very large at the beginning.

Restated another way, the roots of the present doctrine are:

1. Under any practicable procurement policy, centers of impact of different lots of ammunition will differ from each other.
2. It is highly desirable, even essential, that concentrations close to our infantry be fired from single lots.
3. As a result of many handlings of ammunition the number of rounds in any lot reaching the battalion is a small fraction of the original lot size.
4. In order to reconcile these mutually opposing tendencies, present procurement and supply doctrine prescribes:
   a. Making the lot initially very large.
   b. Exerting every effort, at each shipping and handling point, to keep the lot as nearly intact as possible.

How Does System Work?

If the above system is to work, a long chain of events from the plants to the guns must be carefully controlled. This control is not easy. Rather, the system requires an unremitting struggle all along the supply route. First, as mentioned, *lots must be made as large as possible.* Even with the best efforts all along the line, an inevitable amount of scattering and dissipation of the lot is bound to occur. The larger the initial size of the lot, the greater the factor of safety in this respect, and the more likely it is that enough ammunition of any one lot will trickle down to the battalion so that it can fire at least one complete concentration with that one lot.

There are many factors, on the other hand, which operate to keep down the initial sizes of the lots. Some of these are unavoidable, others are avoidable to some degree. In most of the latter cases a choice must be made between speed of output and maximum size of individual lots. Commanders and responsible officials at all levels must be made fully aware of the consequences of the decision in each case where a choice is being made, and whenever it is made against large lots, must ensure that the decision was objectively motivated.

After manufacture and assembly comes the storage in stateside depots and shipment therefrom. Again, care must be taken to preserve lot integrity, and again, such care will not always be easy.

Integrity Versus Efficiency

Then comes the loading and unloading of freighters and railway trains by the Transportation Corps and the Navy. *It is easy to see that the maximum preservation of lot integrity will conflict directly with efficient utilization of cargo capacity, and with speed of loading and unloading.* Yet it is a good bet that everyone concerned is more likely to be judged by his superiors on speed and utilization of capacity, than on how well he safeguards lot integrity.[2]

Similar considerations will apply right down the chain of the Ordnance ammunition supply system in the theater. Here again, there will be times when lot integrity *must* give way to more serious considerations. In some cases, however, the personnel concerned may not even realize the importance of lot integrity in preventing the situation of Figure 1C,

[2] An authority, who kindly read and criticized this article, assures the author that the Transportation Corps and the Ordnance Corps have been working on this problem, and that after the initial scramble of Korea, they gave first importance to lot integrity at least as far as the theater of operations

where an unfair burden is placed on the artillerymen to prevent a disaster. Indoctrination is essential all along the line of supply.

Finally, at the artillery battalion there are personnel who tend to be strongly devoted to accuracy. Unfortunately, they are at the end of the line, and by this time, avoidably or unavoidably, most of the damage is done and they find themselves with many different lots on hand. If, however, the many links in the chain of supply reaching back to the factories worked reasonably well, there ought to be enough lots large enough to fire all missions close to our infantry, on the basis of not more than one lot to be used for one mission. For other situations the competence of our artillery officers can make up for some of the disadvantages of miscellaneous small lots.

Persons who believe that the present system can be made to work point to some instances where it has. Opponents can point out instances where it has not. Certainly, to make it work everyone all along the line, from the components producer, through the Ordnance procurement system, the transportation and supply system, and down to the artillery units, must work hard, intelligently, and unselfishly.

Other unavoidable difficulties may arise. If, for example, a theater commander one day bangs his fist on the table and orders all artillery units in his theater thenceforth to increase their expenditure of ammunition by severalfold, one can well imagine what becomes of lot integrity as the whole procurement and supply system all along the line frantically scrambles to adapt itself to an unforeseeable situation of such gigantic proportions. Quality will inevitably be sacrificed to quantity, once the first decision is made.

Situation Has Improved

For those whose prior experience makes them pessimistic of the workability of the present system, it should be pointed out that virtually all combat experience to date (including Korea) has been with 105-mm ammunition produced during World War II. Since then, there has been a great improvement in manufacturing experience,[3] a better foundation for expansion of production without undue dilution of this experience, a greater awareness of the need for large lots, and a greater awareness of the need to preserve lot integrity down the chain of supply. Since 1952, for example, there have been produced 29 extremely large lots (three of which contained over 140,000 rounds each). It would have taken well over five times as many lots to supply the same quantity of ammunition from World War II production.

Several artillery officers have informed the author that about 10 percent of the lot fractions at their battalions in Korea were sufficiently large to serve single concentrations like that of the example illustrated. If this were the case with World War II ammunition stocks, one can be optimistic that in the next combat situation at least 40 percent of the lot fractions at the battalion positions, and perhaps even more, will be large enough for the job discussed in this article. Since the remaining lot fractions would be small, the bulk of ammunition at the battalions would be in large lot sizes.

Before considering other possible systems, a summary of the pros and cons of the present one is in order. In favor of it, when it works, are economy combined with accurate and precise artillery fire, and better support for an aggressive infantry doctrine. Against it are the difficulties involved. All along the line circumstances are lying in ambush to keep

[3] The probable error within a lot of currently produced 105-mm howitzer ammunition is about one-half of the probable error of the average World War II lot. This improvement is partly a result of postwar research and development, and partly a result of improved quality control in manufacture. And as manufacturers increase their ability to control precision within a lot, they find it easier both to make bigger lots, and to bring the center of impact of each lot closer to that prescribed

breaking up and scattering the lot. Certainly, if the present method is retained, determined efforts must be exerted to make it work. *There must be indoctrination so that personnel become fully aware of the consequences of their actions.* And there must be applied some type of pressure for quality, countering the pressure for quantity.

I—MEASURE ALL LOTS

Actually, the first suggestion is an addition to, and possible reinforcement of, the present system. It would fill the breach whenever the present system failed, as in the case of Figure 1C. Under this proposal each lot would be measured at a proving ground as to two characteristics which would most affect the range. These are the *muzzle velocity* and the *ballistic coefficient.* The results of these measurements would be compared to the *muzzle velocity* and *ballistic coefficient* of the lot used in preparing the firing tables. The differences, if any, are converted to numbers known as "muzzle velocity correction" and "air density correction."

These two corrections, brought up to date from time to time, would be placed on the ammunition data cards, or in some other manner accompany the ammunition to the field. Knowing this information for each lot, it should be a simple matter to compute graphical firing table settings to make the center of impact of one lot coincide with that of any other lot.

The chief disadvantage to this plan is that it places an extra burden of time and effort on the artillerymen to compute the corrections and coordinate the changing of evaluation with each change in lot. This procedure has been in effect for the 90-mm AA system and is soon to be tested for field artillery systems.

II—THREE CATEGORY PLAN

A more radical alternative to the present policy and doctrine would be to group all serviceable lots into three major categories. Proponents recall that this was done at one stage of World War II. Since historical precedent is quoted, a look at that precedent is certainly warranted.

As a result of the hasty mobilization of World War II (both industrial and military) the ammunition lot situation, both in the Mediterranean area and in the United Kingdom, was a complete mess. Colonel (now Major General) Simon, Ordnance Corps, visited both areas and, by a bold combination of common sense and mathematical statistics, brought order out of chaos. General Simon himself, however, would not, in the opinion of this author, regard his solution as ideal, but simply as making the best of a very bad situation.

He grouped all ammunition into four categories, A, B, C, and Unserviceable. Ammunition whose within-lot probable errors were not too bad, and whose *average* ranges or centers of impact at a particular elevation were within ± two FTPE's of the Firing Table Range, were classed as Category A. This category was primarily for firing close to friendly troops without any discrimination by the artillerymen between the many individual lots contained in the category. Categories B and C were for other types of fire, but could be used close to infantry with certain precautions—precautions which, however, tended to reduce the effectiveness of the support.

Certainly this solution has the merit of simplicity.

Some Risk Involved

On the other hand, proponents should be fully aware of the price paid. In this case the situation of Figure 1C could not be prevented from happening if one were to use such a Category A ammunition under present aggressive infantry doctrine. The situation there illustrated occurred because of a between-lot difference of two FTPE's. Yet the proposed Category A

contains a full spread of four FTPE's between lots.

Some will point out that infantrymen are expected to accept some risk of a few casualties from their own artillery, by hugging the fire, as shown in Figure 1B. The author warns, however, against mistaking the risks of pure chance from a normal probability distribution (shown by the percent distribution of rounds in Figure 1B) as being the same as the risk that the entire pattern of fire will shift nearer to them as shown in 1C. In the illustrated situations, considering the differences in cover, it is easy to see that the artillery is inflicting more casualties on friendly troops than on the enemy. (A shell is 10 to 50 times more effective on troops caught in the open than on well-sheltered troops.) In more confused situations, such as an enemy attack, it is not often that supporting artillery fire is laid any more accurately on enemy troops than is the fire of 1C on our troops. Yet it could probably be very effective in breaking up, or at least hindering, the attack.

If the troops hug the fire as they are in process of doing in Figure 1B, and if the fire is all from Lot Number 1, they still run a small risk that a round will fall in their midst. Not shown in the sketch are the possible three in 10,000 rounds that will fall short of those indicated, even if the lot is really distributed as pictured. Add to this the uncertainty that the troops have truly judged the fire pattern or the distance and might be close to, or in, the 1.8 percent zone. Finally, add the small but finite chance of large fragments coming back from rounds that explode well forward. Then it is clear that the troops are not 100 percent safe from their own artillery, even from Lot Number 1, all the way from F to B.

It is these chances that infantrymen think they are accepting. A study of Infantry School training literature shows that they do not expect to accept the risk of Figure 1C as well.

Certainly, The Infantry School and Infantry Board should be informed of any decision to adopt the solution discussed in this section so that infantry doctrine can be modified as needed. A possible modification would be to have the infantry hang back double the present prescribed distance.[4]

Against this is the fact that it imposes on the infantry many extra yards of unprotected assault distance. Furthermore, it is psychologically not as good for the doughboy to be cautioned to hold back as it is for him to be indoctrinated with the aggressive slogan, "Lean into the curtain of fire!"

A final disadvantage resides in the difficulty of identifying and withdrawing a suspected lot after a safety malfunction has been discovered. Lot identities tend to get lost as ammunition moves through the supply line up to the gunners.

III—NARROWER CATEGORY

Another possibility might be a modification of the preceding one. Instead of a Category A which includes a total spread of four FTPE's in centers of impact, establish one which has a total spread of two FTPE's between average ranges at any elevation. Stated another way, Category A would contain lots whose observed centers of impact did not differ from the firing table range by more than one FTPE.

This is a compromise between the present system (which calls for firing with only one lot) and the three-category system above which permits the indiscriminate use of many lots (comprising be-

[4] Apparently this was done a great deal during World War II. Of course, another solution was to avoid using the 105-mm howitzers. In Italy, for example, the 155-mm howitzers were often used instead. Also, there was at least one artillery command in Normandy which used 8-inch howitzers instead of 105's whenever the fire had to be really close to the doughboys

tween 70 to 85 percent of all ammunition recently produced).

Such a Category A, while smaller than that of II above, still would contain many different lots, comprising something like 50 percent of the ammunition recently produced, and while the chance of an incident like that of Figure 1C would be smaller, a slight factor of safety probably would have to be added to present infantry doctrine.

Care Is the Keynote

Field artillery accuracy, especially where the safety of friendly troops is concerned, is only *initially* a matter of design engineering. Ultimately, it requires a joint effort on the part of procurement, manufacture, and supply and transportation personnel; and it calls for good management within the artillery battalion. All are part of the same accuracy team, whether they know it or not.

The present system calls for unceasing struggle, hard work, and foresight on the part of all such personnel, coupled with a devotion to duty and to their infantrymen above and beyond routine considerations.

It also requires that all such personnel are made aware of the significance of their daily performance. Once made aware, most men will respond. A review should be made of the written doctrine and training literature of the Ordnance and Transportation Corps to be sure they properly present the importance of striving for the preservation of lot integrity and to be sure that they have prescribed all measures to do so.

For the inevitable few who might need them, incentives for quality must be devised which are at least as strong as those which promote quantity of output.

The system apparently worked to a marginally adequate level in Korea, in spite of being handicapped by the small and relatively poor lots from World War II production. It should, therefore, not be scrapped on the basis of that or prior evidence alone. Considering the much greater sizes of the lots now in stock and the greatly improved precision within each such lot, the author believes that any future conflict will show the 105-mm howitzer and its ammunition passing the test with honors, especially if backed up by a well-informed logistical team.

Personal experience of the reader, or knowledge gained from records to which he has access, may serve to reinforce, modify, or contradict statements made in this article. The author would appreciate such information either through the MILITARY REVIEW, or direct to him at 9 Saunders Station Road, Eastgate Manor, R. D. Nr. 2, Pitcairn, Pa.

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Personality in War: Mannerheim

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AFTER the Bolshevik Revolution, Finnish officers in the Russian Army considered their tenure at an end.

The most distinguished of these to return to Helsinki in late 1917 was Lieutenant General Baron Carl Gustaf von Mannerheim, late commander of the czar's VI Cavalry Corps. Three decades in the uniform of the Imperial Army had given the handsome middle-aged baron an uncommon familiarity with the Russian national speech and temperament. This familiarity would serve him well in the bitter trials ahead of his people.

Finland's popularly-elected Diet declared the country's independence on 6 December 1917, ending 11 decades of Russian rule. Unfortunately, the Provisional Government, headed by an executive "Senate," was not the master of its own house. The Socialist Party of Finland, stampeded by its Leninist element, was supporting a Revolutionary Soviet in Helsinki. This "alternative government," with 30,000 "Red Guard" militiamen at its disposal, was capable of immense mischief. Strikes, riots, and abductions were common occurrences in the cities of south Finland that winter.

Russians Wouldn't Leave

Despite Nikolai Lenin's prompt recognition of Finnish independence, the Red regime in Petrograd (Leningrad) made no move to withdraw the 40,000 Russian soldiers garrisoned in Finland. Many of these Russians were infected with the Communist virus—how many it was impossible to tell. Having no army at its command, the Senate was understandably nervous and inclined to petition Imperial Germany for a rescue expedition.

However, a number of returned officers, of whom Mannerheim was foremost, held a different view. Boldly assuming Finland's determination to remain with the Christian West into which the Swedish Church had baptized her in the 12th century, Mannerheim reasoned that Finland herself possessed sufficient moral vigor and human resources to save her national identity. Upon the Senate and his fellow officers Mannerheim urged the concept that attainment of true national independence was primarily a military problem. Only by force could the Russian XLII Corps be disarmed and the Red Guards disbanded.

Acclaimed by his brother officers, Baron Mannerheim accepted appointment as commander in chief of forces to be raised for the legal government. The head of the Senate, Pehr Evind Svinhufvud, although personally preferring German intervention as the quickest way out of the crisis, allowed himself to be temporarily persuaded by Mannerheim that Finland could do the job alone.

Mannerheim's reasoning displayed a political acumen seldom associated with the "military mind," but which can spell the difference between greatness and mediocrity in commanders. Accepting German help, he explained, involved shar-

Although Mannerheim devoted his energies to organizing and leading military resistance, he kept the political objective in mind and fought for victory that would safeguard the civilization he wanted to redeem

ing the fortunes of the Central Powers in the World War then raging toward its climax. If Germany lost, Finland would lose, too. If Germany won, Finland would become a satellite. If Germany liberated Finland from the Reds, neither world opinion nor the Finns themselves would believe in Finnish valor and self-reliance. But if the Finns freed themselves, they would secure a freedom unencumbered by moral or political mortgages.

Building the Resistance

The supreme commander saw two major tasks before him. One was to mobilize the military potential of Finland. The other was to organize a center of "White" resistance outside the Red-dominated areas of southern Finland.

It would have been easy to despair of the chances for beating the Reds at this point. They had a headstart in arming and training, they held the great population centers, and their proximity to Lenin's capital assured them his continued support. But Mannerheim was gambling now on the willingness of the Finns to fight off Russia's bid to renew her domination of Finland under Communist auspices. Moreover, Mannerheim was comforted in the knowledge that rural Finns were adept with firearms. Equally well known to him was the mushrooming of rural anti-Red "Defense Corps" vigilantes, surreptitiously organized and drilled by former Finnish officers and noncommissioned officers of the czarist army.

One of Mannerheim's happiest surprises was his discovery that there was a battalion of battle-hardened Finnish veterans in the German Army, the 27th Jaeger Battalion. Organized in Holstein in early 1915 at the urging of anti-Russian student organizations in Finland, this 1,800-man unit consisted of four light infantry companies, a pioneer company, an artillery battery, and a signal detachment. Since these veterans were excellent cadre material, Mannerheim urged the Senate to waste no time in getting them released from German service.

For his general headquarters, Mannerheim chose Vaasa, a port city on the Gulf of Bothnia, easily accessible to Scandinavia and directly linked by rail with eastern areas outside the Red stronghold. (See Figure 1.) Traveling under forged Swedish passports, the baron narrowly escaped capture by Russian military police at Tampere. On 19 January he arrived in Vaasa and was greeted by a gathering of Defense Corpsmen clamoring for an immediate march on Helsinki.

First Blow a Success

The situation was dangerous enough in Vaasa, where some 5,000 Russians were garrisoned, without a headlong rush on the capital. Despite Svinhufvud's instructions to avoid hostilities for a while, based on a reviving hope that the Reds could be negotiated out of Finland, Mannerheim resolved to fall on the Russians at Vaasa and disarm them. Before the Russian commander could get wind of his plans, Mannerheim severed his telephone wires and rushed his barracks on 28 January. Before the day was over the Finnish generalissimo had captured the bewildered Russians and gathered into his arsenals 8,000 rifles, several dozen machineguns, and a few field guns.

It was the stitch in time, for on that very day the Helsinki Soviet staged its

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coup d'etat and began a systematic round-up of business, professional, and political figures. The officials of the legal government had to run for it now, and Svinhufvud himself made it to Vaasa, by way of Estonia and Sweden, in about five weeks' time.

While the Reds mounted a reign of terror against the Whites in southwestern Finland and marshalled their confident forces along the front Pori—Tampere—Lahti, Mannerheim hastily organized his GHQ at Seinäjoki, outside of Vaasa. Training and staff talent was reaching him in quantity now, including the advance guard of nearly 100 Swedish regular army officers who resigned their commissions to fight for Finland. The new GHQ, as set up now, consisted of a General Staff Section (operations), an Arms Staff (ordnance), a Quartermaster Department, and a Training Inspectorate.

Jaegers Were Invaluable

Then there was the question of troop units. In response to appeals by Svinhufvud and Mannerheim, a Swedish brigade was taking shape. The Swedes, it must be noted, brought with them six outdated observation planes to form an Air Service that would give Mannerheim the upper hand with Red intelligence officers. When it came to organizing native manpower, Mannerheim was convinced of the neces-

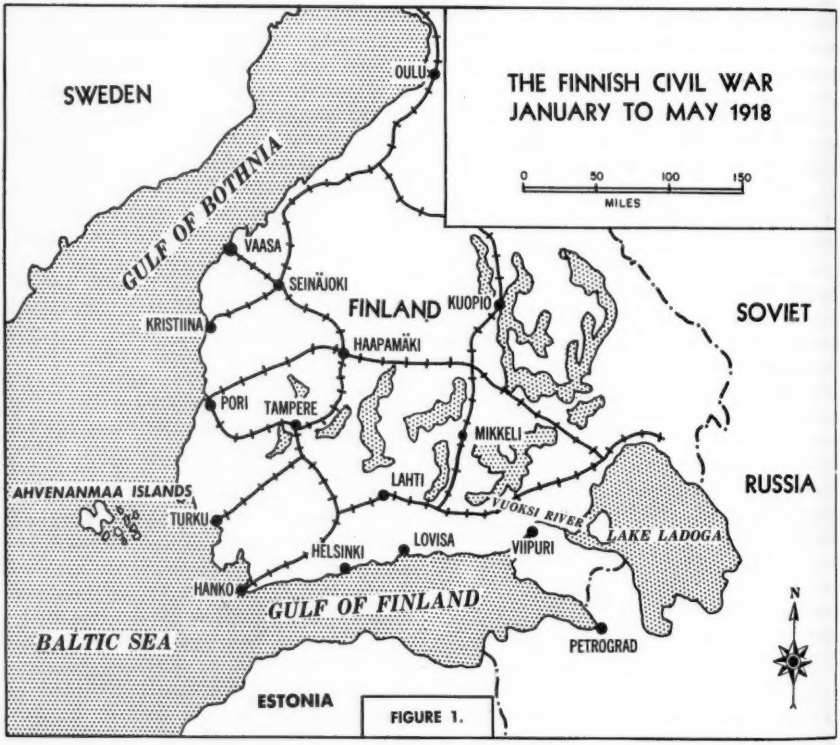


FIGURE 1.

sity for two measures. First, he would discard the rag-tag-and-bobtail Defense Corps in favor of regular units. Second, he would rely on conscription to provide an army of nine divisions (three regiments each), an Uusimaa Dragoon regiment, and several special units.

Late in February the Senate instituted universal conscription of men between 18 and 45 in the sparsely-settled northern provinces now cleared of enemy forces. By the end of February the Jaegers were home. Thereupon, Mannerheim organized three brigades of conscriptees to be trained and led by Jaeger cadremen. The Jaegers were also instrumental in building up 12 artillery batteries, seven engineer companies, and four signal companies. The significance of these Jaegers in the national resistance of 1918, or in Finland's military tradition, is impossible to overestimate.

As if in specific rejection of the Tolstoyan thesis of the inevitable course of impersonal historical forces, Mannerheim's personality decisively affected the development of the national army's organization and effectiveness. When he arrived in Vaasa in January 1918, all was chaos. No firm tradition or body of doctrine assured the new generalissimo of the obedience of the newly raised Defense Corps leaders, and few were disposed at first to heed the baron. Colonel J. O. Hannula wrote:

A mediocre general steeped in the tradition of the Russian military bureaucracy would have been an immediate failure. Merely to distribute decorations and appeal to his rights as commander in chief would have availed little without the influence of personality.

And it was precisely on this point of personality that Mannerheim was surely competent to head the White forces. With his martial bearing, eloquence of expression, and superior intellect and culture the baron quickly gained the admiration and trust of the White troops from the crustiest major general to the rawest peasant firebrand.

Reds Finally Attack

Having wasted precious weeks mopping up resistance in the southern cities, the Reds prepared to advance northward in late February with 10,000 Russian and Finnish troops. During the preceding weeks Mannerheim had been building his front, sector by sector, until by 20 February the most dependable Defense Corps units had established a line running from Pori, on the coast, through Vilppula, thence to the south of Mikkeli, and eastward to the Vuoksi River line on the Karelian Isthmus east of Viipuri.

On 21 February the Communists unleashed an all-out drive on the coastal city of Kristiina and the key inland railway towns of Haapamäki and Jyväskylä. For four days the struggle continued in swirling snowstorms as the Reds stumbled across Defense Corps positions and encountered a resistance of unexpected ferocity. Promised an easy victory, hundreds became disgusted with their commissars and deserted. By 25 February the Reds' offensives were at a standstill. Mannerheim's greatest worry now was restraining the exultant Defense Corpsmen from premature advances.

Early Attack Essential

While the shocked Communist staff reorganized for a more serious effort, Mannerheim was planning a drive of his own. The spring thaw was coming, and the Reds would soon have time on their side. Mannerheim well realized that the thaws would hamstring his advance and give the Reds time to uproot the traditional culture of southern Finland. In disheartening contrast with Mannerheim's aggressiveness was the attitude of the Swedish Government which persistently ignored Svinhufvud's appeals for help on the grounds

that a Red victory was "inevitable" and that Sweden should be preparing for coexistence with a Red Finland.

Unknown to Mannerheim at the moment, the Russian Government began withdrawing its remaining troops from Finland toward the close of February. No act of generosity was involved. The German Army, following the breakdown of Russo-German peace talks at Brest-Litovsk, had resumed its drive on western Russia on 18 February. Seeking additional forces to bolster the sagging front, Red Russia severed her official connections with the Finnish Civil War. Some officers and men did remain, but Petrograd thereafter maintained the fiction that they were "volunteers."

German Intervention

While preparing his counterstroke, Mannerheim was rudely shocked on 3 March by a notice from Svinhufvud that the Senate had arranged for German military help. Outraged by what he considered the duplicity of the civilian government, Mannerheim hotly announced his intention to resign. After an all-night argument with his staff, however, the baron finally fought off the temperamental inclinations so common to budding national heroes. By morning his lieutenants had worked out a plan that would save the baron's feelings and avoid obstructing the Senate.

First, it was agreed to speed up plans for the Finnish counterdrive in order to demonstrate to the world (and the Germans) that Finland could defeat the Reds unaided. Second, Mannerheim was to secure command of any German troops sent to Finland. Finally, the German commander on his arrival was to be required to disclaim any interest in Finnish politics. The latter two stipulations were quickly ratified by Field Marshal Paul von Hindenburg in a direct cablegram to Mannerheim on 10 March.

The Reds Strike Again

On 9 March the Communists struck again on the Vilppula front, intending "to drive the White butchers off the Haapamäki-Pieksamaki railway." Having learned a bitter lesson, the Reds showed more cunning this time. They sought to pin the Whites down in Vilppula while breaking through to the east and west of the city. It took three days of desperate combat west of Ruovesi to convince the Reds that victory there was impossible. Although it took a bit longer, the Whites along Lake Päijänne threw off the attackers with greater losses. A Red descent on Kuhmoinen met with such frightful losses on 10 March that it took the local Whites only five days to clear the district of the enemy.

Although disasters were mounting on his flanks, the Red commander threw everything he could at the line Ruovesi—Vilppula—Maanta. By 15 March Mannerheim's defense of Vilppula had bled the enemy white and jolted his morale. The second Red offensive now broke down completely, and a savage purge of Red military leaders began—the consequence of failure in the totalitarian world.

The Communist disaster was in large measure the result of inferior intelligence. The attackers had disregarded their flanks mainly because they "knew" that Mannerheim had no reserves. In fact, the Reds were unaware until the middle of March that the Jaegers were home.

Mannerheim Attacks

Even more shocking to the enemy was Mannerheim's counteroffensive of 15 March, following right on the heels of the Reds' massive failure before Vilppula. The tide was turning, and the baron seized his opportunity. The Communists were paralyzed by their defeat and the purge. But more important, time was of the essence if the Finns were to score their prestige victory before German intervention could be felt.

Mannerheim played for the big stakes. (See Figure 2.) First, he aimed to snare the Reds' main body at Korkeakoski, about 30 miles northeast of Tampere. Second, he would swoop down to liberate the key Red stronghold and headquarters at Tampere itself. The baron hoped that his main force at Vilppula could keep the Reds engaged around Korkeakoski. Meanwhile, Mannerheim visited its commander to "build a fire" under him. Finally, instead of taking Orivesi, this force assaulted and seized Korkeakoski from the rear guard of the alarmed and retreating Reds on 19 March. The detachments from Kuhmoinen and Jamsa, successful at Orivesi, promptly backed away when the Reds stampeded through there heading for

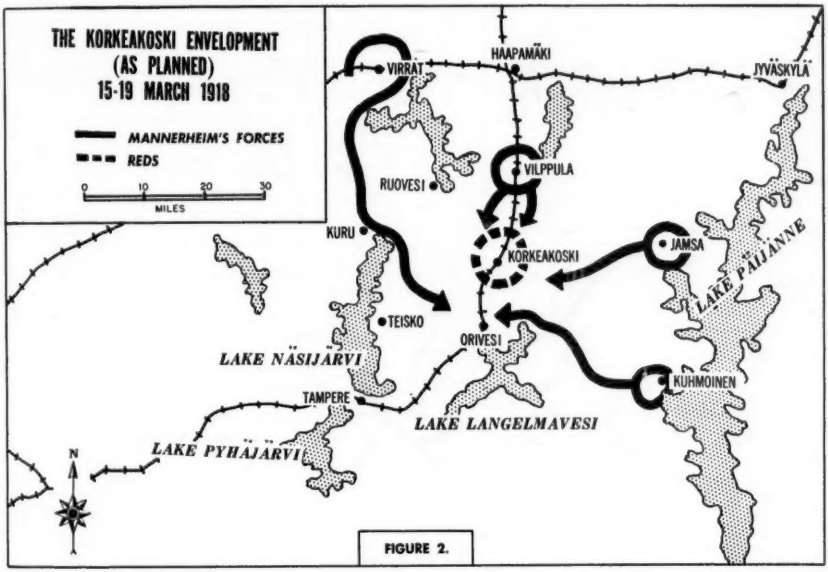


FIGURE 2.

his detachment at Virrat, to the northwest, would slip past Kuru and down the east shore of Lake Näsijärvi toward Orivesi, due south of Korkeakoski. Other detachments, from the area of Jamsa and Kuhmoinen, would descend on Orivesi from the east. Once this was done the trap would be closed and the flower of the Red Guard would be in Mannerheim's grip.

Disappointment stalked GHQ that week. Unit training had not reached that high pitch of perfection needed to assure the success of this pincers movement. The Virrat force made such slow progress that safety at Tampere. The Red "Army of the North" thus made good its escape, leaving Mannerheim only 700 prisoners.

From his GHQ at Vilppula, Mannerheim ordered the advance on Tampere to continue. (See Figure 3.) Increasingly doubtful that the Defense Corpsmen could do it, he, nevertheless, proceeded with a plan to surround the Red bastion at the south end of Lake Näsijärvi.

Inspired by their recent advances and local victories, the White Finns now showed to better advantage in the envelopment of Tampere. Stealthily they closed in, from

Orivesi on the east, Teisko to the north, and Ikaalinen to the west. Red outposts fell one by one. On 26 March the trap closed on Tampere, one week after the Communists fled Korkeakoski.

Concentrating in the rugged stone buildings of the city, the Reds built up a deadly line of fire and prepared to stand off Mannerheim until relief should come. This

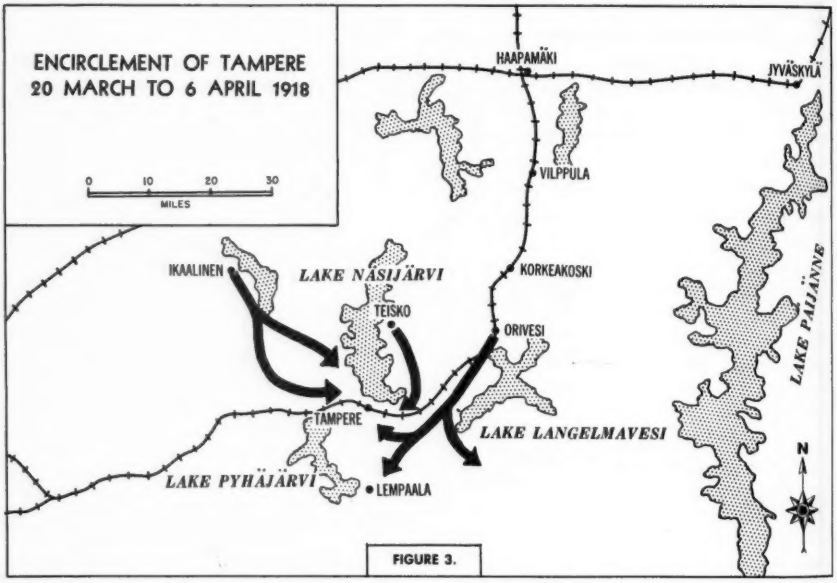


FIGURE 3.

situation confronted the baron with a difficult problem, the solution to which bore eloquent testimony to his fitness for high command.

Since it was clear that the half-trained Defense Corpsmen were unequal to digging out the Reds, the question arose whether to throw in the cream of the reserves, the 1st Jaeger Brigade and the Swedish volunteers—trained and ready to go. Some wanted the Jaegers saved for the grand climax on the Karelian Isthmus, where in the end Mannerheim could block the retreat of the Red Guards to Russia. Success in Karelia, argued others, if purchased at the cost of a White debacle at Tampere, would leave it to the Germans to redeem Finnish independence.

Reserves Committed

Gustaf Mannerheim was statesman enough to grasp the urgency of reducing Tampere at once, and he was soldier enough to avoid scattering his strength in the enemy's presence. Weighing the risks, on 28 March he gave the fateful order to send the reserves against Tampere. For over a week the battle raged, first in the suburbs, then in the streets of the city. On 30 March the Helsinki Reds attempted to relieve the defenders by attacking Mannerheim's railroad block at Lempaala, just to the south of Tampere. The attempted relief failed, and on 6 April the besieging force overran the last Red strongholds inside Tampere. About 11,000 unwounded

Reds surrendered. And among the 2,000 dead counted by Mannerheim's aides was the body of the Red commander whose 25,000-man Army of the North was no more.

On the morrow of this signal victory, Mannerheim organized his forces into two field armies. The Western Army, commanded by Major General Martin Wetzer, conqueror of Tampere, was to cooperate with the Germans. The Eastern Army, under Major General Ernst Lofstrom, was to operate on the Karelian Isthmus with the bulk of the Jaegers.

The decision to concentrate the elite forces in Karelia showed Mannerheim's astuteness once again. Many hotbloods wanted to race due south from Tampere and seize Helsinki before the Germans arrived. While appreciating this sentiment, Mannerheim felt that such a move would enable the Reds to escape with their main forces over the isthmus to Russia. Should they succeed in this, he reasoned, the Red force would doubtless be maintained on the Finnish border as a harassing force. If this led to border strife, the Soviet Union would have a tailormade excuse to interfere in Finnish affairs at some later and more auspicious time.

The Red Collapse

During the first week of April the Germans landed in the south. Their commander, Major General Count Rüdiger von der Goltz, took his division ashore at Hanko, well to the west of the capital, on 3 April. Advised that another German brigade was available, Mannerheim instructed Von der Goltz to land it at Lovisa, 50 miles east of Helsinki, where it could help to block the expected Red retreat toward Petrograd.

The terror-stricken Communist regime made several rapid-fire decisions after the German landing at Hanko. Since the Red's main western force of 30,000 men was engaged with Wetzer's army, it was obvious that Von der Goltz could ransack the Communist rear echelon at will. The Reds began withdrawing their western troops toward Helsinki to prevent Wetzer and the Germans from trapping them. On 7 April, the day the Germans landed at Lovisa, the Red junta fled to Viipuri, near the Karelian escape hatch.

On 11 April the German commander reached the abandoned capital where he found the local Defense Corps up in arms against the Red municipal authorities. Completing the work of the local forces, the Germans turned the city over to the White Finns and marched north to meet Wetzer.

FIGURE 4.

The scene of decisive action had shifted in the meantime to the area of Viipuri. (See Figure 4.) Here, Lofstrom's troops had literally been hanging by their eyelashes on the Vuoksi front since March. By 19 April Lofstrom was ready to march on Viipuri to choke off the isthmian route to Russia. The Jaegers constituted a major part of his 24,000 men, including a dozen

infantry regiments and the Jaeger artillery brigade. The Red Karelian Army had about 18,000 men along the Vuoksi.

Directing his main body against Viipuri on 19 April, Lofstrom sent one spearhead from Antrea to the west of the city and another across the Vuoksi toward the coast of the Gulf of Finland south of Viipuri. The southern force crashed through to the coast on 23 April, forever isolating Red Finland from the Russian source of its spiritual and material vitality. And by 25 April the main White force had slugged its way into Viipuri.

Abandoned by the Red junta, which boarded ship for Petrograd on 26 April, the defenders tried to hang on in Viipuri. Lofstrom would not be denied. On 29 April the Reds surrendered, 15,000 strong. Save for isolated guerrilla skirmishes to the west, the Finnish Civil War was at an end.

National Hero Is Born

With the specter of bolshevism at last exorcised, jubilant Helsinki paid homage to her heroes on 16 May 1918. Tancred Borenius, one of Mannerheim's several biographers, movingly tells of the baron's march into the capital at the head of 16,000 representative troops—stern Jaegers, jaunty Defense Corpsmen, gallant Uusimaa Dragoons, and stolid Swedes who had risked all to save Finland for the West. It was exactly four months to the day, Mannerheim told the Senate and Diet, since:

. . . Finnish officers were appointed to assume command of an army which did not exist, but which was to be created with funds voluntarily subscribed, and equipped with arms which were yet to be purchased or wrested from the enemy.

A national hero had been created. But other honors lay ahead in a career which would elevate the baron to the rank of marshal, regent, commander in chief in two more wars with communism, and ultimately President of the Republic. Looking back at Mannerheim's rise to greatness in 1918, it is instructive to consider the traits of his personality which left such an impact on military history.

This man was no mere military technician. In him were appropriately blended those ingredients of military and political competence vital to his success in the War of Liberation. If he sensed that Finland's liberation was a military problem, it was because his political sophistication told him that Lenin's agents, aiming at a satellite role for Finland, could not be negotiated out of the land.

Kept Politics in Mind

Although Mannerheim devoted his energies to organizing and leading the military resistance, he appreciated the intimate relationship between political and military necessities. The political advantages of self-liberation were never in question so far as he was concerned. And toward the close of the struggle he shaped his operational plans specifically to prevent the escape of the Red Guards to Russia where they might one day become a political nuisance. In brief, it can be said that Mannerheim fought not only to win, but to win in such a way that victory would safeguard the civilization he wanted to redeem.

Throughout his many years of glory the baron never lost sight of the spiritual and moral values without which western civilization could offer but futile resistance to communism. That he kept these values central to his thinking is a tribute to Mannerheim's intellectuality. Education, travel, and linguistic proficiency had made him a man of the world in the best sense. When the issues were drawn in 1918, he knew the enemy as well as he knew his followers. Indeed, he saw the basic issues with a clarity envied by his associates.

"If you know the enemy and know yourself," wrote Sun Tzu ages before, "you need not fear the results of a hundred battles."

MILITARY NOTES AROUND THE WORLD

UNITED STATES

Recovery Vehicle

Fourteen landing vehicles tracked-recovery *(LVTR-1)* are under construction for the United States Navy at a cost of over 1.5 million dollars. The amphibious *LVTR-1* is used for the recovery and maintenance of disabled landing craft and is equipped with a 7,000-pound capacity crane, a 20-ton winch, and welding and repair tools. It is 32 feet long, 11½ feet wide, 10½ feet high, and weighs 41 tons. —Official release.

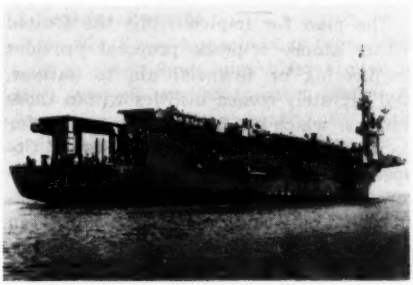
Destroyers Join Fleet

A *Sherman* class destroyer and the Navy's first missile destroyer have recently been commissioned. The 3,518-ton *USS Barry*, the third of a planned 18 *Sherman* class destroyers, is completely air-conditioned. The 418-foot vessel is capable of speeds in excess of 35 knots, and is armed with three 5-inch guns, four 3-inch guns, and four 21-inch torpedo tubes. It is also armed with the *Hedgehog* antisubmarine weapon and conventional depth charges.

The Navy's missile destroyer, the *Gyatt*, is the third warship to be converted to guided missile armament and is the first of 16 destroyer type vessels planned for the guided missile fleet. It was converted from a World War II 2,250-ton destroyer, and is armed with the *Terrier* antiaircraft missile and the latest antisubmarine detection devices and armament. Guided missile vessels previously commissioned are the cruisers, *Boston* and *Canberra*.—News item.

Assault Carrier

The helicopter assault carrier, *Thetis Bay (CVHA-1)* (MILITARY REVIEW, Oct 1956, p 68), was built to exploit the capabilities of improved helicopters to be used by the Marine Corps in amphibious operations. It can carry 20 *HR2S* 22-passenger



The *Thetis Bay (CVHA-1)*

or 40 *HRS* 10-passenger helicopters. It has a crew of 700 officers and men and carries approximately 1,000 marine troops. —Official release.

Jeep Mine Detector

A jeep-mounted mine detector which automatically stops the vehicle when it locates a land mine has been developed. The detector covers a path six feet wide in front of the jeep and is operated from controls mounted on the dashboard of the vehicle. A search coil, which is kept at constant height above the ground by skid caster type wheels, operates a hydraulic mechanism that disengages the clutch and sets the brakes when a mine is discovered. In addition, lights on the indicator panel change from green to red and an audible signal is produced. The detector and its carriage assembly weigh about 700 pounds. —Official release.

Big Jet Order

The Navy has placed a 70 million-dollar order for *T2V-1 Seastar* jet trainers. The *Seastar*, with a maximum speed of over 600 miles an hour, lands at only 97 miles an hour, and is designed for either land-based or carrier operation. The speedy trainer is a specialized development of the *T-33* two-place, all-purpose jet trainer. It is powered by a 6,100-horsepower *J33-A-22* jet engine.—News item.

Atomic Assistance Plans

The plan for implementing the United States atoms-for-peace proposal provides engineering or financial aid to nations, and privately owned utilities within those nations, which enter into agreements for cooperation with the United States. Cooperative agreements for research reactors have been entered into with 32 nations, but only seven agreements have been reached for power reactors. The latter includes the United Kingdom, Canada, Australia, Belgium, the Netherlands, France, and Switzerland. Financial assistance will be limited to the expense of material, equipment, and technical services to be exported from the United States.—News item.

Aircraft Fittings

A process known as "cored forging" will permit the use of aluminum instead of the conventional brass in fittings for aircraft hydraulic systems. The system is expected to decrease the manufacturing time by 38 percent, and reduce by 40 percent the amount of raw material needed for each fitting.—News item.

Air-to-Ground Speaker System

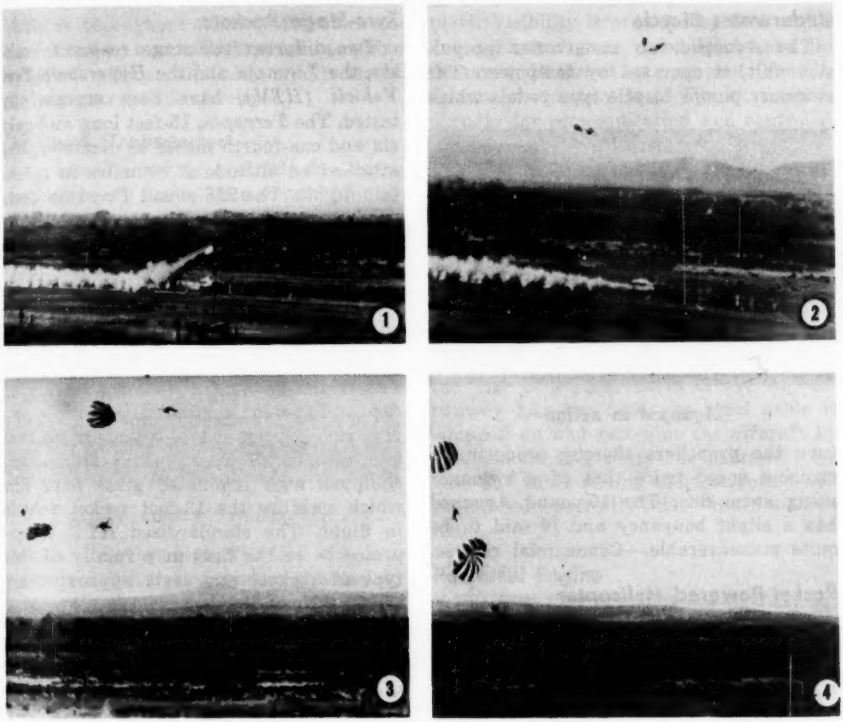
An air-to-ground speaker system which can deliver a three to five-minute tape-recorded message as it descends by parachute is under development. The system, weighing 850 pounds, is housed in a bomb-like container 118 inches long and 18 inches in diameter. It contains a magnetic tape playback unit, a 500-watt battery-powered amplifier, and a three-stage parachute system. It is designed to be dropped from altitudes as high as 60,000 feet. The system commences operation at about 4,000 feet and the parachutes lower it to earth at a speed of 14 feet a second as it broadcasts its recorded message.—News item.

Carrier Named

The sixth *Forrestal* class aircraft carrier *(CVA-64)* will be named the *USS Constellation.* The three vessels of this class now with the United States Fleet are the *Forrestal (CVA-59)*, the *Saratoga (CVA-60)*, and the *Ranger (CVA-51)* (MILITARY REVIEW, Jul 1956, p 68, and Nov 1956, p 71).—News item.

Helicopter Record

An *S56* helicopter has reached a top speed of 162 miles an hour and an altitude of 12,000 feet while carrying a load of 11,050 pounds for a new world's record. In a second weight-lifting attempt, the *S56* carried 13,250 pounds to an altitude of 7,000 feet. The previous record for weight lifting was held by a Soviet *Yak-24* helicopter (MILITARY REVIEW, Sep 1956, p 71).—News item.



Rocket-propelled ejection seat proves superior to standard *M3* type

Ejection Seat Tests

In a recent comparison test of various types of ejection seats a *RESCU Mark 1* rocket-powered seat was ejected from an *F-102A* nose section rocket sled simultaneously with a standard *M3* type cartridge catapult. The tests indicated that rocket-propelled escape systems will ensure greater clearance of the aircraft, and give the pilot a much better chance of ejecting safely from ground level. Instrumented dummies, simulating pilots, were in the seats during the test. The rocket-propelled seat ejected the dummy to a height approximately twice that attained by the standard *M3* cartridge type seat.—Commercial release.

X-Ray for Rockets

A robot X-ray inspector has been developed to detect flaws in artillery rockets as they come off production lines. The X-ray inspection system is presently undergoing ordnance engineering tests.—News item.

Guided Missile Frigate

Construction of the Navy's first guided missile frigate, the *USS King (DLG 10)*, is planned for this year. The *King* will be 512 feet long and displace 3,900 tons. The frigate will be armed with *Terrier* guided missiles and 5-inch guns. The vessel is intended for employment in the antiaircraft defense of high-speed task forces.—News item.

Underwater Bicycle

The *Aquaped*, an underwater propulsion unit, is operated by footpower. The swimmer pumps bicycle type pedals which

***Aquaped* in action**

turn the propellers thereby producing a cruising speed twice that of a swimmer using swim fins. The 19-pound *Aquaped* has a slight bouyancy and is said to be quite maneuverable.—Commercial release.

Rocket-Powered Helicopter

The *Stable Mabel*, a single-place rocket-powered helicopter, has successfully passed initial flight tests. Officially designated the *KH-15*, the aircraft is powered by rotor tip-mounted rocket engines which use a fuel consisting of 90 percent hydrogen peroxide. The *KH-15* is designed as a research vehicle, weighs only 230 pounds empty, and is said to be extremely maneuverable and stable at all altitudes.—News item.

New Names for 'Nike'

New names for the *Nike* family of antiaircraft weapons systems include the *Nike-Ajax*, the former *Nike I* antiaircraft missile now installed at sites near several United States cities; the *Nike-Hercules*, previously the *Nike-B* which is an improved version of the original *Nike*; and the *Nike-Zeus*, renamed from *Nike II*. Information concerning the design and functioning of the *Nike-Zeus* system has not been released.—News item.

Two-Stage Rockets

Two different two-stage research rockets, the *Terrapin* and the *Hypersonic Test Vehicle (HTV)*, have been successfully tested. The *Terrapin*, 15-feet long and only six and one-fourth inches in diameter, has attained an altitude of 80 miles in recent test flights. The 225-pound *Terrapin* costs only about $2,000 and is so simple to operate that two men can assemble the launching rack and fire the rocket in 15 minutes. The rocket is currently in use as an atmospheric research vehicle.

The *HTV*, which utilizes seven solid-propellant rockets in its first stage and five in the second, is used for gathering data at hypersonic speeds and reaches several times the speed of sound in its first two seconds of flight. Both stages are equipped with laminated glass fiber fins which stabilize the 13-foot rocket vehicle in flight. The standardized *HTV* is expected to be the first in a family of this type of rockets and costs approximately $5,000.—News item.

Cross-Wind Landing Gear

The cross-wind landing gear of the *B-52 Stratofortress* permits the 200-ton, eight-jet bomber to take off or land in a

***B-52* in cross-wind landing**

"crabbed" attitude that cancels out the effect of wind across the runway. All four of the dual-wheel main landing gear units swivel and can be prepositioned from the control cabin which makes it possible for the *Stratofortress* to utilize safely many

airfields throughout the world that cross-winds make impracticable for a plane equipped with a standard, unidirectional landing gear.—Official release.

Off-Road 'Transporter'

A radically new type vehicle for transporting heavy loads over rough country has been announced. Each of its six wheels

Cross-country *Transporter*

mounts a six-foot high, 2½-foot wide low-pressure tubeless tire, and is powered by a separate electric motor. The motors also serve as brakes when the power to them is reversed. Electrical power is furnished by a pair of generators which are driven by a 335-horsepower diesel engine, and is used for all functions of the vehicle to include steering. A unique feature of the *Transporter* automatically cuts off power to any wheel that loses traction and transfers its share of the total power to the other wheels. Even when loaded to its 35-ton capacity, this vehicle can negotiate soft sand, powdery snow, or dense underbrush and can take wide gullies and steep grades in stride.—Commercial release.

Protection for Dozer Drivers

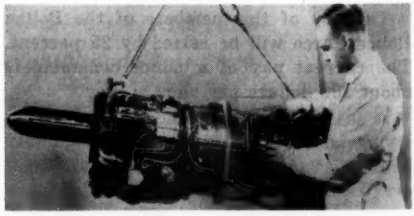
Tractor drivers in future forward combat areas will be afforded protection against small-arms fire and shrapnel by use of a protective armor kit. The armor kit can be installed on standard *D-7* or *D-8* caterpillar tractors by maintenance personnel in the field, thus protecting both the engine and the driver with armor plate. Visibility is provided by four standard laminated glass vision blocks and the doors can be locked open or shut. Ventilation is provided by fans. The kit includes a radio for communication and control.—Official release.

Crash Barriers

Approximately 300 aircraft runway crash barriers, now in worldwide use, have prevented over 200 aircraft from crashing and are estimated to have saved the Air Force over 78 million dollars in a 13-month test period. The barrier is a nylon ribbon connected to a steel cable. When the nose of a plane about to overrun the runway hits the tape, the steel cable is whipped up and restrains the aircraft by its main landing gear. The barriers were used 307 times during the test period and functioned perfectly 205 times.—News item.

Powerful Engine

The new *T-58* is one of the smallest but most powerful turboshaft engines yet announced. Weighing only 325 pounds with



Powerful *T-58* turboshaft engine

reduction gear, it produces over 1,000 horsepower. Its high power-to-weight ratio is more than three times greater than piston engines now used to power helicopters. Its lightweight, high power, and low fuel consumption make it particularly applicable to VTOL aircraft. The *Vertol H-21C* (MILITARY REVIEW, Oct 1956, p 66) is being experimentally equipped with this engine.—Commercial release.

INDIA

Reorganization

In a reorganization of the map of India 14 states have been created in place of 27. This plan draws most of India's linguistic groups together in states of their own; only two states will continue to be bilingual.—News item.

Aircraft Deal

In a negotiation with Great Britain involving 8.5 million dollars, India has purchased 25 light *Folland Gnat* jet fighters (MILITARY REVIEW, Oct 1956, p 73) and has obtained the manufacturing right for airframe and motors of this type plane. With British support, a new factory is being built for the fabrication of all models of the *Bristol Orpheus* jet motor, the powerplant of the *Gnat*. The first of the 25 British-made *Gnats* is scheduled for delivery in early 1957. The agreement also includes the exchange of technical personnel.—Foreign source.

POLAND

Pay Raise

The pay of the members of the Polish Police Force will be raised by 25 percent. The current pay of a police constable is about 200 dollars per month.

It has also been announced that Russian style, close-cropped haircuts will no longer be mandatory for Polish soldiers, and each draftee has been authorized 17 days' leave during his two years of compulsory service.—News item.

International Agreement

An agreement between Poland and the Soviet Union provides that the USSR will deliver 1,400,000 tons of grain on credit to Poland in 1957, and will also set up long-term credits for Poland in the Soviet Union totaling 175 million dollars. The agreement further stipulates that the Poles still in the Soviet Union will be repatriated, and that Soviet troops in Poland will not move outside their stations without agreement of Polish authorities.—News item.

Air Strength

The Polish Air Force is reported at present to consist of approximately 60 squadrons, most of which are equipped with *MiG-15* type fighter aircraft. Military airbases exist at Königsberg, Legnica, Mohrin, Slupsk, Katowice, Barwalde, Poznan, and Demblin. Five mixed antiaircraft regiments are under the Air Force Command.—Foreign source.

GUATEMALA

Trade Resumed

The Guatemalan Congress has approved a measure ending the state of war with Germany that has prevailed since 11 December 1941. This measure opens the way for resumption of diplomatic and commercial relations with West Germany, and with it lifts the ban on trade with that country. Details of a peace treaty have not been announced. No trade with East Germany is contemplated.—News item.

BURMA

Troop Withdrawal

An agreement has been reached with Communist China calling for the withdrawal of Chinese troops from the area to the west of the 1941 boundary line. Burmese troops will be pulled back from Hpimaw, Kangghang, and Gawlum, all of which are in the state of Kachin.—News item.

TURKEY

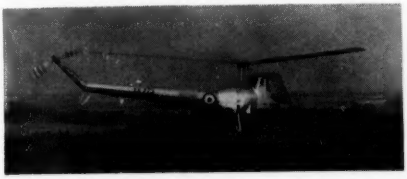
Civil Defense

Turkish citizens are receiving three months' civil defense instruction in factories, offices, and schools. Civil defense units are being organized in all areas of the country under the provisions of a law that is still in effect but which has not been enforced for two years.—News item.

GREAT BRITAIN

Observation Helicopter

The *Skeeter Mark 6* helicopter is in quantity production for use in aerial observation work. The *Mark 6* is equipped with a *Gypsy Major 201* piston engine which employs inlet-port fuel injection



***Skeeter Mark 6* helicopter**

rather than float type carburetion. The *Skeeter* features night- and instrument-flying equipment, and has a flight duration capability of 3½ hours.—Commercial release.

Air-Sea Rescue Launch

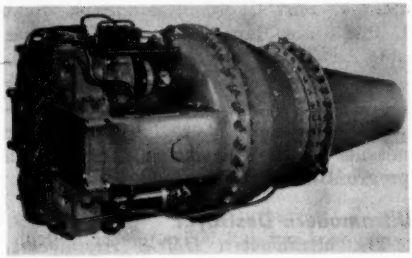
Fiberglass and welded aluminum are used in the construction of a new British high-speed air-sea rescue launch. The frame, the bottom of the hull, and the deckhouse are of aluminum; molded fiber-

Aluminum-fiberglass rescue launch

glass panels, three-tenths of an inch thick, comprise the upper portion of the hull. Power is supplied by two *Rolls-Royce Sea Griffon* engines developed from the aero-engine which was used in the *Spitfire* fighters of World War II.—Official release.

Lightweight Jet Engine

The *Blackburn Turbomeca Palas 600* weighs only 148 pounds but produces 390 pounds of thrust. It is designed for installation in small, pure jet aircraft such as trainers and target aircraft. Its double

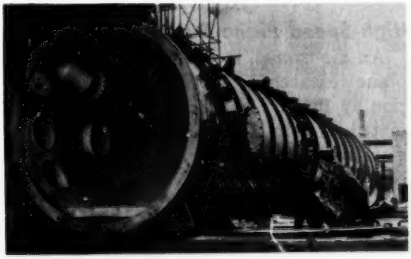


Blackburn Turbomeca Palas 600

air intake, common to all engines in the *Blackburn Turbomeca* line, permits all auxiliaries to be mounted within the diameter of the engine which is built with a maximum number of interchangeable parts.—Commercial release.

High-Altitude Test Plant

A 63-ton welded steel cylinder is the main component of a newly developed,



Main component of test plant

high-altitude engine test plant. The plant will simulate high altitudes by simultaneous reproduction of the low atmospheric

pressures and high airspeeds associated with supersonic flight. Both ramjet and turbojet engines will be tested in the new installation.—Official release.

CANADA

Arctic Tests

Approximately 2,000 men of the Canadian and the United States Armed Forces are conducting operational tests of equipment at Fort Churchill, Manitoba. Joint United States-Canadian projects include a new carrier to replace the current *Penguin* and *Wapiti* oversnow vehicles, a new light snowshoe, and many items of individual equipment. A proving program for missiles under extreme cold is also in progress.—News item.

Ultramodern Destroyer

The ultramodern *HMCS Assiniboine*, the second of 14 planned Canadian designed and built destroyer-escorts, is now in service with the Canadian Fleet. The 2,000-ton *Assiniboine* is capable of a speed of 27 knots, armed with four 3-inch antiaircraft guns in twin-turret mounts, and is equipped with Sonar, and *Hedgehog* antisubmarine rockets. The vessel features the use of aluminum in its construction and is especially designed for mass production.—News item.

JAPAN

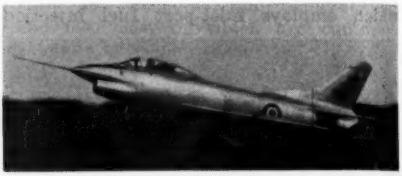
High-Speed Plane Research

An air tunnel, to be used for high-speed plane research, is expected to be in operation by 1958. The tunnel will cost an estimated half-million dollars and will use motors generating 45,000 horsepower.—News item.

ITALY

NATO Ground-Attack Fighter

The *Fiat G 91*, a light ground-attack fighter, has been selected for production by NATO after international assessment. The swept-wing *G 91* was equipped with a *Bristol Orpheus* lightweight turbojet engine of 3,285-pound thrust for its first tests. Other versions with higher power are now in operation. The main landing gear of the *G 91* is mounted under the wings, retracts inward, and is housed in the fuselage. A braking parachute is



Fiat* ground-attack fighter, *G 91

used to reduce speed after landing. Detailed performance characteristics of this aircraft are not currently available.—Commercial release.

COMMUNIST CHINA

Armed Forces Progress

According to a press report, Communist Chinese ground forces comprise 35 armies of three divisions each. The reorganized infantry division has a strength of approximately 17,000 men. There are also several specialized divisions, such as railway construction and antiaircraft artillery, and eight to 10 armored divisions. Two of the latter are said to be equipped with the *Josef Stalin 3* tank. Almost all of the 2,500 aircraft are jets, and most of these are fighters with the *MiG-17* outnumbering the *MiG-15*. Although lacking in heavy bomber strength, the Red Chinese Air Force is well equipped with the Soviet *Il-28* fighter bombers. Five snorkel-equipped submarines, four Soviet destroyers, and many powered landing craft are being assembled at shipyards near Shanghai. The Chinese Communists are reportedly assembling their own *MiG-17* jet fighters from component parts supplied by the USSR. The three airborne divisions are said to be located in Fukien, where they are also reportedly constructing rocket launching sites.—News item.

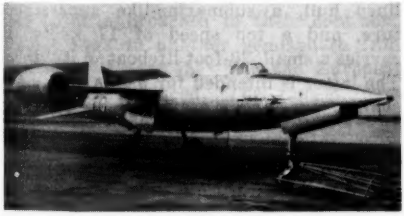
FRANCE

Aircraft Modified

A version of the *Fouga CM 170R Magister* (MILITARY REVIEW, Jan 1955, p 69) is now being constructed which permits landings on aircraft carriers. The *CM 170R* is normally powered by two *Turbomeca Marbore II* 880-pound thrust turbojets, but experimental versions of the aircraft are being equipped with the *Gabizo* 2,420-pound thrust engine. Performance figures of the experimental plane have not been released.—News item.

Supersonic Interceptor

The *SO 9050 Trident II*, a light interceptor, is a direct military development of the supersonic experimental *SO 9000* (MILITARY REVIEW, Nov 1956, p 77). Like its predecessor, the *Trident II* has no ailerons and lateral control of the aircraft is accomplished by the tail surfaces. It has achieved high supersonic speeds in tests. Its powerplant, a rocket engine and two light turbojets, gives it great versatility and permits an extremely wide range of missions. The *Trident II* has an

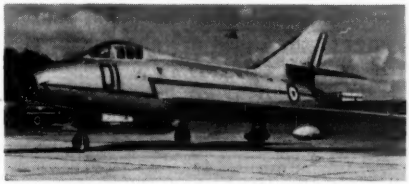


Jet- and rocket-powered *Trident II*

exceptional rate of climb which remains constant at all heights and its ceiling is said to be limited only by the pilot's vulnerability to extreme altitudes. The use of integrally filled (metal honeycomb) construction has given it a light airframe of exceptional rigidity. It is capable of using small, roughly-prepared airstrips for both landing and takeoff.—Official release.

Jet in Production

Slated to start coming off the assembly lines in early 1957, the *Super Mystère B2* is intended to replace the *Mystère IV A* (MILITARY REVIEW, Apr 1955, p 70). The *B2* is said to be a first-rate interceptor and a powerful ground support plane. It has an *Atar 101G* turbojet engine of 9,240-



France's *Super Mystère B2*

pounds thrust with afterburner. A production order for 200 *B2's* has been placed by the French Government.—Commercial release.

ARGENTINA

Airplane Manufacture

The *Mentor T-34-A* trainer aircraft is to be manufactured in Argentina according to a recently announced agreement. The *T-34* is a two-place primary trainer used by both the United States Air Force and the Navy.—Foreign source.

USSR

Naval Strength

The Soviet Union is rated second to the United States as a naval power, with Great Britain third according to the 1956-57 edition of *Jane's Fighting Ships*. The Soviet submarine fleet now numbers more than 400 units of which a large percentage are new construction, long-range craft. The USSR is expected to commission 75 to 80 new modern submarines in each of the years 1957 and 1958. Since the end of World War II the Soviets have built more cruisers and destroyers than the rest of the nations of the world combined. *Jane's* estimates that within 10

years the United States will have many atomic-powered vessels and most of the vessels of the submarine category and higher will be equipped with guided missiles.—News item.

Railroad Electrification

In an effort to eliminate interruptions in railroad traffic due to winter weather conditions, more than half of the railroad routes of the USSR are planned for electrification by 1970. Losses in freight traffic during winter have been 20 to 30 million tons according to a Soviet economic review.—News item.

State of War Ends

Japan and the Soviet Union have signed a declaration ending the state of war which has existed between them for the past 11 years. The agreement includes a Soviet renunciation of all reparation claims on Japan, and a promise that the USSR will release and repatriate all Japanese prisoners of war still held in her territory. The Soviet-held islands of Habomais and Shikotan to the north of Japan will be turned over to Japan after the formal conclusion of a peace treaty. A trade protocol included in the signing ceremonies grants most-favored-nation treatment to both sides. The signing of the pact concludes 16 months of negotiations. It is not a peace treaty but merely ends the technical state of war between the two nations on the basis of the reestablishment of diplomatic relations. The date for a conference on the peace treaty has not been announced.—News item.

WEST GERMANY

Air Force Plans

According to a German newspaper, a little over one billion dollars has been authorized for the purchase of aircraft for the future air force. Procurement plans include 244 combat jets, 1,280 reconnaissance and training aircraft, 170 transports, 139 helicopters, and five air-sea rescue planes. In addition to the trainers previously announced (MILITARY REVIEW, Dec 1956, p 71), 15 *F-84 Thunderstreak* fighter bombers have been delivered to the new West German Air Force under the United States Military Assistance Program.—News item.

Training Progress

Approximately 800 United States officers and men are now serving with the German Training Assistance Group. Several training cycles have been completed in 12 different training centers. A thirteenth training center, an airborne school, is being added to the program. Following the completion of the first year of the planned three-year training assistance program, training requirements will be taken over by advisory groups assisted by special instructor personnel from the United States Army, Europe.—Official release.

Double-Duty Rescue Boat

West Germany's newest sea rescue lifeboat, the *Hermann Apelt*, has a streamlined hull, a submarine-like superstructure, and a top speed of 17 knots. It carries a small, 20-foot lifeboat in its stern. The latter is intended for use in water too shallow for larger craft.—News item.

Armed Forces Plan

The West German Government has announced that it will have 120,000 men under arms by the end of 1957. The new schedule calls for the immediate formation of three infantry and two armored divisions, each with a complement of 12,000 to 13,000 men. In addition, an Alpine and an airborne unit of 8,000 men each are planned. All units are expected to be fully equipped and manned. The total strength of the German Armed Forces is to be considerably less than previously planned (MILITARY REVIEW, Oct 1956, p 70).—News item.

FOREIGN MILITARY DIGESTS

Strategic Values and Weaknesses of NATO

Digested by the MILITARY REVIEW from a lecture by Captain Cyril Falls in the "Journal of the Royal United Service Institution" (Great Britain) May 1956. Copyright reserved.

THE greatest strategic advantage of NATO, using the word strategy in the strictest sense, is that the most powerful partner in it, the United States, with which Canada is closely linked in the defense of the polar approaches to their continent, stands back in another hemisphere from the acute danger in which the European partners are placed. The richest, most productive, the strongest militarily, the most populous, and the most extensive NATO base of operations is the United States, and it is, at the same time, the least vulnerable. But even the United States is vulnerable now to an extent never before conceived.

It is true that Soviet Russia approaches the New World closely at the Bering Strait. Yet the prospects of defense are far better. The efficacity of warning systems is far greater, and they are an essential factor in any defense in nuclear warfare.

This is a vital advantage. It is a formidable deterrent to aggression. If a global nuclear war should occur, it is the best guarantee that such a war would not be lost. It is, in short, the fundamental element in the strength of NATO that, whereas the United States can project her power into other continents, the American Continent is happily situated for its own defense and, therefore, can maintain its power to strike for its partners.

There have been many military alliances in history. Some of them have been frank and cordial. Information has been exchanged. Arrangements have been made to place certain forces of one partner under the command of an officer of another in the event of war or an emergency period when war is imminent. But there never has been an active working headquarters exercising the full functions of command in time of peace in any alliance, however close.

NATO has set up in SHAPE the first allied headquarters which, as a matter of course, regularly and continuously exercises the functions of command in time of peace. This is an immense merit from the military point of view, but an arrange-

ment to which the signatories of NATO would in all probability not have been prepared to submit if they had not considered themselves to be in great danger —as they assuredly were when the organization was set up.

Of course, the theoretical power of command is not in practice absolute. That would be contrary to human nature. Tact has to be exercised, and persuasion may have to take the place of such an order as would be issued by the commander in chief of a national force to one of his subordinate commanders. Persuasion may not always succeed in its object, but it is the most realistic organization ever set up to coordinate the defense of a large group of nations, differing in size and population and in power and resources.

Another way in which to assess the value of NATO is to consider what the state of affairs would be had it not been created. The method of Hitler in his operations was described as following the principle of "one by one." He used this principle first in the remilitarization of the Rhineland, so that he might put up a shield behind him to the west while he made his moves to the southeast. Then came the forcible *Anschluss* with Austria, the acquisition of the Sudetenland, and the rape of Czechoslovakia. On each of those four occasions the chief European powers, Great Britain and France, could not make up their minds to act. When he took his fifth step, against Poland, they did act, but they went to war on the occasion which was the least favorable.

The pre-NATO period after the end of the 1939-45 war was not very different, although there was less likelihood of the Soviets getting away with aggression without having to fight for it than there had been in the case of Hitler's Germany, because the USSR could not advance westward without coming into contact with the American and western European forces of occupation. But there was no general understanding. Various individual treaties existed, but it was not always easy to assess their value.

Thus Turkey had treaties with Great Britain and France, but not with the United States.

We had made a guarantee of aid to Greece in case of aggression, but experts did not agree whether it was still valid or whether, since it applied to the situation existing in April 1939, the promise had been fulfilled during the war and, as it were, "used up." Defense lacked coordination; it also lacked strength.

Modern War

One of the features of modern war is that small nations can no longer equip themselves without the aid of larger, richer, and more highly industrialized allies. In 1864, when Denmark fought Prussia and Austria, the Danish Armed Forces were as well equipped as those of their powerful foes. This would be quite impossible today unless Denmark obtained equipment from outside.

If we are more favorably placed today and the shadow of war has lightened, at least for the time being, this is very largely due to the creation of NATO, to the increase in strength which it has brought about, and to a new solidarity and coordination.

Another valuable feature has been the establishment of a general unity of doctrine. This has, inevitably, been imposed from above. It is mainly American, although it has certainly been influenced also by British ideas. It extends to tactics to a certain extent, but they have not become entirely uniform, and it is not necessary that they should. British and American Army tactics differ slightly, but neither in war in Korea nor in maneuvers in Germany have there been any serious difficulties when British troops have operated alongside American.

The pooling of knowledge and experi-

ence has also been of great value. The regular inspections and consultations have taught the higher commanders and their staffs the characteristics, the problems, and the prejudices of the partners in NATO. The large combined maneuvers have had the same effect. Sometimes this has proved rather unwelcome to national pride, and that may be so even in the case of a major power like Great Britain. I recall the big naval exercise in 1952 when the United States carriers *Midway* and *Franklin D. Roosevelt* came over to this side of the Atlantic and our weakness in naval aircraft at that time was rather uncomfortably shown up; but one cannot doubt that in the long run the effects of such knowledge of the armed forces of partners are healthy.

Again, for armed forces, perhaps the most valuable of all knowledge comes under the heading of intelligence. The highest standard of intelligence can be reached only by an international staff. This is because of the large number of intelligence channels which become available. And when a perplexing item of intelligence comes to the head of an intelligence department of an international staff, he generally has among his subordinates someone who can explain to him its probable significance.

Economy of Force

Economy of force is another product of NATO, and in this case perhaps most of all with respect to naval and air forces. One can see it at its simplest in the function of control and defense of the Atlantic. The two chief naval powers who are members of the treaty are the United States and the United Kingdom; Canada is a member of the British Commonwealth and also closely linked with the United States. The main naval ports and main naval strength lie on either side of the Atlantic. Convoy escorts may carry through from one side to the other, but a large proportion of naval strength can be used by each power in its own section of the ocean and can combine in that central area which has always proved difficult to defend. The stronger of the two, the United States, can afford to allot considerable strength to the Mediterranean. The same applies to the land-based aircraft of these two powers which are destined to play a part in the control of these waters.

As regards air forces, economy of force is also secured. An immense advantage has been derived from the availability of bases, both defensive and offensive in character and objects. It is certain that the disposition of offensive bases, made possible by NATO for the most part, has made an important contribution to the Soviet's realization of the danger of counterstrokes if an attack were launched on the West. And this in its turn has led to the recent easing in relations.

One of the greatest of all the strategic benefits of NATO is that the main strength and will of NATO lies in the United States and the United Kingdom, and neither can be attacked without bringing on massive retaliation. Strategically, it is an advantage that the stronger of the two, the United States, is the more remote and the less vulnerable. Supposing the United States were to be the first and main victim of attack, as some American experts think would be the case, it appears unlikely that the surprise would be so complete as to make retaliation from United States airbases impossible. If it did, there would still be British and American bombers available on airfields outside the United States.

In the case of an attack on England alone, I am afraid that the surprise might be so great as to preclude serious retaliation, but the aggressor would be subjected to the full weight of retaliation from the United States. If the attacks were simultaneous, the aircraft directed against the United States would have to start first,

and again some warning would be practically certain.

Moral Factor

The moral factor is also important in strategy. Morale has without any doubt been raised by the treaty and the way in which it has been carried out in the military sphere. Remember that in the terrifying years after the war the United States, the most powerful arm on the side of freedom, had entered no European group pact. It is true that she had some forces in Europe, that her sympathies were obvious, and that she might be expected to act in the event of war. But she was hardly drawn into the defense of Europe in advance.

It was not until April 1949, some nine months after the famous "Vandenberg Resolution" in the United States Senate, that the North Atlantic Treaty was signed in Washington. Even after that it took some time before the organization could be set on a firm footing. Since then the most important developments have been the entry of Greece and Turkey into NATO and the Balkan Pact between Greece, Turkey, and Yugoslavia. The latter is not a member of NATO. Naturally, as the growth of NATO strength in Europe was a slow and laborious process, the rise of western European morale was slow also, but there can be no doubt that there has been a rise.

A final basic value of NATO is that state of preparedness for action—the arrangements made and kept up to date for swinging over to a state of war—which could be achieved only by an international organization of this type. There has been much talk of deterrents. One of the most efficient deterrents is knowledge that all are ready for resistance and retaliation and that no one victim can be marked out for slaughter singly since attack on one would be regarded as attack on all.

It is always harder to point out and analyze the advantages of a military pact than its weaknesses. Some weaknesses appear very grave at this moment, in fact, NATO has come to a bifurcation of roads —one leading to a continuance of its success, the other to failure. Optimistic views on one factor, pessimistic on another, have influenced the European members. They believe that the possibility of a world war in the near future has been greatly diminished. This is not an unreasonable belief. But they link with it a belief that if a world war should occur, it would be immediately decided by nuclear weapons. This belief, again, may be correct. The lesson they are inclined to draw from both these beliefs, however, is that so-called conventional forces have ceased to be of value.

Small States

In the small European states especially there is steady pressure to cut NATO costs in favor of more popular expenditure. This trend will result in even greater efforts to economize and even more marked hanging back. On top of this tendency there has recently been a deadly drain on the strength of NATO in Europe by the shifting of the best French troops to North Africa and their replacement to only a limited extent by reservists.

Remember that each signatory is largely the judge of its own provision for defense. Look around Europe and you find differences everywhere in the strength of the professional element and the length of service of the conscript element in armed forces. Each signatory is also its own judge of the nature of the assistance which it should give another signatory if the latter becomes the victim of aggression. Again, any member may refuse to permit the bases of stronger allies to be established on its territory.

The little state making such refusals takes out, as it were, a double assurance: first against attack by joining a partner-

ship the big members of which would go to war if the little one were attacked; secondly, by making itself inconspicuous and unprovocative, not neutral, of course, but with some of the elements of neutrality created by keeping the forces of the big members off the national soil.

People in the mass understand only simple ideas. Even highly educated people often understand only simple ideas on any but subjects in which they take a special professional or intellectual interest.

The idea that nothing counts but hydrogen bombs is simple; therefore, it appeals to the multitude—and to a good many politicians, either because their strategic mentality is similar or because they flatter the multitude. Once you arrive at the belief that nothing counts but hydrogen bombs, your enthusiasm for NATO obviously droops. It may disappear altogether, for NATO is expensive. Why pay for outdated means of defense?

New Factors

The contrary idea is complex. To begin with, the frightful force of the hydrogen bomb has brought up, almost for the first time in the thermonuclear age, the possibility that a major war might be fought without it. It is not prophesied that it would be, not even suggested that this would be desirable, since the West looks much more likely to be beaten in a nonnuclear than in a nuclear war, because it has to deal with vastly superior conventional forces. It is asserted that this possibility, even if the balance of probability is against it, raises the importance of conventional forces.

The appearance on the scene of tactical atomic weapons is another new factor. These are at the command of SHAPE, whereas the hydrogen bomb is not. The weight of opinion seems to be that the use of tactical atomic weapons would involve that of the big bombs. Yet, again, this is not completely certain. If it proved that those tactical weapons did not bring down the big bombs, then the value of conventional forces would increase. This might be particularly the case with armor; but infantry, artillery, and engineers would all rise again in importance.

If land forces at the disposal of NATO in Europe were reduced beyond a certain limit, there would be a risk of small forward moves, infringements of frontiers or lines of demarcation, by the other side. We might see another series of step-by-step advances, and just as the democracies hesitated to allow Hitler's advances to bring on a world war, so they might in the future consider that it would be a crime to start a nuclear war on such a provocation. If they did not, where would the process stop?

Finally, there is the question of minor wars with tacit agreement to keep them within artificial limits. A Korea was undoubtedly better suited to the Far East than to Europe, but a secondary war of this type cannot be discounted wholly. It would, of course, be fought with conventional forces.

Weaknesses

The weakening of the enthusiasm for NATO, the edging out of its responsibilities, appears to be a grave danger and an acute one. NATO should not be wrecked on this rock, but it might well be.

A serious weakness has been the absence of the Federal Republic of Germany from the ranks of the defense. All military authorities and military students have perceived the impossibility of putting up a defense east of the Rhine, unless Western Germany took part in it. Now, at last, the principle of German rearmament has been conceded, but there is still no German Army.

The delay has encouraged elements in the country hostile to rearmament, and in some cases neutralist in aspirations, to fight on. Even now, if that great personal-

ity, the Federal German Chancellor, were to pass on, no one can foresee to what extent his policy would be carried out. The decision has also been delayed long enough to allow rueful calculations of its effect on taxation to penetrate the minds of the citizens. Hitherto, German industry has enjoyed advantages just because Germany was defeated and disarmed. These will end with rearmament.

And no one is asking more insistently whether the war will not be decided over their heads by the hydrogen bomb than the Germans. West German newspapers, carefully following recent maneuvers, were dismayed by the simulated use of tactical atomic weapons in retreat. Some concluded that they would wreck the country, even if nothing bigger were brought into action. It has occurred to many Germans that they might avoid untold ills by not rearming. So far it does not look as though these defeatist counsels would prevail. It would be a disaster if they were to do so.

The frontier between western and eastern Germany—which was, of course, merely meant to be a temporary boundary of zones of occupation and has become what it is through Soviet bad faith—starts in the bay of Lubeck, runs due south to the Elbe, and follows the course of the river for about 50 miles before bending southwest at Wittenberg. The slightest push on the northern end of this frontier where it touches the bay of Lubeck opens a door into Denmark through Schleswig-Holstein.

A push as far as the Elbe at Hamburg, a normal distance for armored forces to travel on the first or second day of a surprise offensive, leaves open every road between Germany and Denmark. Danish military strength is trifling. The Danish Government is one of those which will not have foreign armed forces on its soil. Once an invader enters Jutland he will find little trouble in spreading out all over Denmark. Those who have visited Elsinore know that there the Sound looks like no more than a broad river. So a small advance on the NATO left flank might lead to the occupation of all Scandinavia.

We should not be so naive as to suppose that the Germans would defend this flank out of pure altruism, but it would be to their strategic advantage to allocate a proportion of their strength to it. In Oslo this question is very much in the minds of those concerned.

The next weakness is that the members have not been able in all cases to sink political differences or to get rid of jealousies and rivalries. Fortunately, these have been rare in Western Europe and it would be hard to think of any serious one existing at the present moment.

The Eastern Mediterranean

But this is by no means the case in the eastern Mediterranean. Greece and Turkey first concluded a pact, and then obtained admission to NATO. Next the then Greek Prime Minister, Field Marshal Papagos engineered the Balkan Pact between his country, Turkey, and Yugoslavia. From the strategic point of view it was a masterpiece of policy. Turkey entered it with the greatest eagerness. In fact, she became anxious and even angry over the delay on the part of Yugoslavia in ratifying the treaty and Papagos had to jog Marshal Tito's elbow.

But look at the state of affairs now. What has happened has been tragic and it is hardly too much to say that, while the Balkan Pact itself is virtually in ruins, the entire structure of NATO in that part of the world is threatened. The bitter quarrel between Turkey and Greece over Cyprus, followed by the destruction of Greek property to the tune of millions by Turkish mobs, followed again by Greek vexation over our attitude in Cyprus and the attitude of the United States about the Greek effort to bring the Cyprus issue before the United Nations, has been disastrous. It has been officially stated that

Greece was at one time considering withdrawal from NATO, not as a probability, but as a possibility.

This is not put forward as an intrinsic weakness of NATO any more than it would be of any pact. But it is certainly a practical weakness at the moment. Even if the Balkan Pact remains in being, and Greece and Turkey remain members of NATO, no pact can be efficient without a basis of cordiality.

The last strategic weakness comprises psychology as well as strategic planning. It can be described in the familiar question: "Whose finger is on the trigger?" Its essence is the dilemma caused by the terrific power of the major thermonuclear weapons. The main striking power is not in the hands of NATO, not in the hands of an alliance, but in those of the President of the United States and his advisors.

Supposing there were signs pointing to Russian preparations for aggression, what should be the reaction? The future of the world might depend on the answer to that question. We may feel assured that the problem has been faced realistically and with the aid of the highest military skill, combined with prudence. They cannot altogether remove the dilemma. And no country is more deeply concerned in this decision than Great Britain.

Conclusion

It is not easy to make a strictly strategic analysis of NATO. One reason is that strategy implies choice, whereas NATO is by its nature defensive, and a defensive strategy is as difficult to discuss as it is to carry out.

The value of NATO outweighs its weaknesses as matters stand, but we must keep our eyes open to danger and not be blinded by comfortable conventions. The dangers are: an increase in the weaknesses due to overconfidence that the possibility of war has been eliminated; impatience with the burden on budget and manpower; and, finally, the subversive sapping and mining which is a feature of the cold war.

Psychological Warfare

Translated and digested by the MILITARY REVIEW from an article by Major A. Durieux in "L'Armée-La Nation" (Belgium) June 1956.

PSYCHOLOGICAL warfare, like military warfare or even economic or diplomatic warfare, is a series of more or less violent acts by means of which a power or an alliance attempts to force an adversary to accept certain claims, whether just or unjust. Only the weapons differ.

As a matter of fact, all wars, whether military, economic, or diplomatic are psychological wars, and are carried on in one or the other of these forms.

The aim of psychological warfare is to destroy the will of the enemy army and civil population to resist. The will to resist being a state of mind, it must be the mission of psychological warfare to modify this state of mind in the enemy, in order to lead him to abandon his determination and to recognize his defeat as unavoidable.

The first thing to be done, therefore, is to undermine the morale of the army and, perhaps still more, that of the population by persuading them that their cause is bad and in a desperate way, and by showing them that it is entirely to their advantage to surrender. Total war is not confined to the fighting forces: it affects the entire nation, since the population of a nation is essentially a crowd and, as such, is more accessible and more vulnerable to psychological action.

History

The expression "psychological warfare" is of relatively recent origin. However, psychological warfare was not born suddenly in the present era by spontaneous generation. Its history is that of war—the history of humanity.

In all ages, peoples, or at least their chiefs, have carried on war with the very definite idea of obtaining victory. Victory is a conquest of mind, and an analysis of victories shows that much of the success of the majority of military actions has been dependent on psychological factors. Naturally, those factors a leader will try to create and maintain in his own camp, he will attempt to destroy in the camp of the enemy.

Eight centuries before Hitler's Germany, for example, Genghis Khan made skillful use of the effects of a fifth column to upset the organization and minds of hostile nations and to create dissensions between friendly countries which would lead them into war.

And we know that the Greeks, long before the Christian Era, made successful use of the insidious weapons of rumor, intimidation, threat, and crafty persuasion.

Closer home, Clausewitz wrote at the beginning of the 19th century: "War is an act of force by means of which we attempt to oblige the enemy to submit to our will. It is the instrument of policy continued with other means."

In the United States War of Secession which was, in fact, the first total war, we shall notice the terror and panic inspired by the presence of Sherman and his army in the South.

During the course of this same war occurred the first employment of tracts, which were distributed in the Confederate lines, exhorting the troops to mutiny.

According to J. de Maistre, Marshal Foch wrote: "Which one is it that advances? The one whose conscience and countenance cause the other to pull back!"

During World War I some of the aspects of psychological war were already taking shape. Marshal Foch, moreover, enounced a significative equation: "War is equal to the department of moral force."

It was toward the end of World War I that a new strategic weapon was employed —the chief psychological weapon: propaganda. It was employed almost solely on the front with the aim of undermining the morale of the enemy. It was with this in view that the Allies, during the last months of the war, dropped millions of tracts.

This action was taken by the Allies with clarity of foresight and at an opportune moment. It was well adapted to the psychology of the adversary and, in consequence, was fully effective, while the German counterpropaganda turned out to be ineffective because it was illogical and unpsychological.

During the interim period the USSR and Germany developed that psychological action usually designated as a "war of nerves." As Georges Rotvand remarked, "It would be more accurate to call it the war of minds for it is in the minds that victory or defeat is determined."

Leon Trotsky in his *Strategy of Disintegration* outlined the basic principles of psychological warfare which would not cease until after the Communist victory over the entire world. The army was to support the operations of the psychological war by the ever-present threat of physical violence, and to assure by brief and brutal combat the destruction of the resistances already disintegrated by the psychological weapons.

In Germany, as soon as it had obtained power, the Nazi Party occupied itself with the indoctrination of the German people in accordance with the Trotsky method. Then it planned to extend its action to all of the Western World. It must be admitted that this cold war was progressively waged to a degree bordering on perfection,

both in the choice of the ideas to propagate and the means for attempting to obtain their acceptance. It had, however, but one objective: to mask the preparation for war by arousing the admiration of the other countries over the rapid economic and social recovery of Germany.

When World War II broke out the Germans possessed an efficacious psychological weapon which had been patiently tried out during the prewar period. As Georges Meyer recently wrote:

Up until 1941 psychological warfare was an appanage that was almost exclusively German, embodied in the person of Goebbels. The French and the English did not possess or employ any other than means insufficiently adapted to the struggle against the enemy morale. It was then that the English and the Americans established the basis of a coherent psychological action whose 'first aim was to break the monopoly that Goebbels had created for himself in Europe.' To realize this it was necessary to succeed in 'constraining the German Government, by skillful propaganda, to accept a controversy, by radio.'

And thus there began, by the B.B.C. and the other Allied services, war propaganda conducted to the saturation point, that is to say until the moment when the credit accorded by the German populations to the information broadcast by the Allies had reached the point where the enemy finally believed and judged, not in accordance with what his own government taught him, but in accordance with the news which reached him from London.

We are all aware of the undeniable results achieved by the most modern technical and scientific resources aided by ingenuity, imagination, and sense of the appropriate.

The Korean conflict enabled the Americans to perfect a program of psychological warfare by practical application, and organize appropriately all the way from the General Staff to the G3 of each individual staff. This war demonstrated once more the importance of psychological action, and it showed the necessity for the perfect intermeshing of all the services as well as coordination with operational plans.

Characteristics

Psychological warfare, as we have said, is directed against the will to resist of the army or of the population.

Its fundamental characteristics (as, obviously, found in *Mein Kampf*):

The next war will be characterized by the psychological collapse of the enemy as a result of revolutionary propaganda. The enemy will be demoralized. He will be forced to be passive. Our strategy consists in annihilating the enemy from within and in conquering him in spite of himself. Confusion in minds, confusion in feelings, indecision, panic—these are our weapons.

Goebbels was to add a few precise details to this declaration:

We must seek out discontented minorities, ambitious and corrupt leaders, the brutes, and the fanatics. We must accentuate their grievances, excite their passions, sharpen their appetites, set the poor man against the rich man, the Capitalist against the proletarian, the Aryan against the Jew, the taxpayer against the government, the soldier against the general, the young generation against the older which is responsible for established order.

It is normal, as a matter of fact, that the will of a nation to resist depends on its capacity to endure inner psychological tensions stirred up by its adversary. It is a function of the moral health of a nation. And present-day total war is, to a greater degree than a clash of material forces, a moral test.

Undermining the morale of the adversary is, therefore, necessary for ensuring victory.

Obviously, the action of psychological warfare does not produce the instantaneous and spectacular effects of the explosion of a bomb. It is an action requiring long patience. That is why it must be methodical, permanent, and guided by circumstances.

A program planned to result in a psychological victory is normally comprised of three stages: demoralization of the enemy by rendering him tired of the war; then turning discouragement or disillusion into despair by convincing the enemy of the uselessness of his sacrifices, of the impossibility of victory, of the wrongness of his cause, and of the bad faith of his leaders; and finally, promising an amelioration of the situation by offering good food and comfort to prisoners, by promising a reasonable peace.

This sequence of these phases is not absolutely necessary, but it is the most logical and the most efficacious.

The Means

In the age of technique and scientific progress, all the resources of the modern world have been utilized for making psychological warfare the most important weapon of modern war.

The classification of the means may be made on the basis of natural or technical means—the latter depending, practically, on the former. That is why we prefer to divide the means accordingly as they are spoken, written, visual, and illustrated. Material means are sometimes added to these. Whatever the heading is under which they are placed, they can all be combined under a single word—propaganda.

Propaganda is the basic tool of psychological warfare because it is essentially psychological.

Propaganda

Numerous definitions have been given to propaganda. It is usual to turn to the Soviets for a sufficiently definite one. As a matter of fact, we find it in the title of a work by Chakhotin: *The Rape of the Masses by Propaganda.* Chakhotin is the disciple of Pavlov, who laid the foundations of experimental psychology and who established a theory of conditioned reflexes. Hence we could say that propaganda is a slow, psychological rape tending to cause the individual and the masses to act by reflex.

We find another definition in an anonymous writing of the period of the beginning of the last world war:

Propaganda is essentially a method for searching out, putting into action, and coordinating the entire ensemble of the means, of persuasion suited for arousing, maintaining, and disseminating among the masses more or less incapable of being reached by purely rational demonstrations, the principles, the faith, the mysticism which permit the community to live, to prosper, and to renew itself.

More often propaganda is putting into operation all the means, from the mildest to the most violent, for imposing ideas on a given group.

From among recent writings we shall extract the definition proposed by Captain Yves Hervouet: "Propaganda is the extrinsic determination of the motives of thought and action."

And Captain R. Gaude, ". . . all propaganda is an attempt to create favorable attitudes in a group of individuals by the methodical utilization of means of communication with the masses and with a well-defined aim."

Objective

Propaganda, the principal means of psychological warfare, obviously has a similar objective.

The normal objective of all propaganda is to influence the individual and, through him, the social group, the community, or the nation to which he belongs, in such a way that they will react and think in the way decided on by the promoters.

In the case of psychological warfare, the aim of propaganda is to provoke a change in the state of mind of the enemy so that his will to fight and resist will be gradually—yet fatally and definitively—reduced to nothing.

Characteristics

It is easily perceived that the first characteristic of propaganda is permanence. Goebbels said that ". . . to carry on propaganda is to talk of the idea everywhere —even on the streetcars." Propaganda must follow the man like his shadow, attach itself to him from dawn to nightfall, wherever he is, whatever he is doing.

It must skillfully create an atmosphere of obsession which gives the individual a complex. It must become for him a necessity preventing him from thinking of anything else than the inescapable result.

The second characteristic of propaganda is that it must necessarily be a counter-propaganda. The adversary to which it is addressed has his own ideology, his attitudes, his habits, his beliefs, his own psychology, and favorite subjects. Skill consists in making use of this existing arsenal, exploiting it to one's profit after having integrated one's self with it psychologically.

Moreover, propaganda must serve an activity. In this domain, Hitler, Goebbels, Mussolini, Lenin, and Stalin excelled. Propaganda appears, moreover, to be of a totalitarian essence or, at least, of a totalitarian tendency. It is totalitarian in its own nature, in its field of action, and in its means.

Finally, propaganda must be oriented in conformity with a dynamic idea that is concise, clear, persuasive, plausible, and marked by an inescapable consequence.

In 1936, Manöilesco, in *The Only Party*, wrote:

The dynamic idea to propagate must be an idea which will arouse and sweep the masses and élite along together. It must bear a tint that is at the same time generous and alluring, offer at the same time the opportunity for sacrifice, and the promise of paradise. In a word, it must constitute a myth.

Another characteristic of propaganda is that it has, when all is said and done, a scientific basis and that, since it is the basic weapon of psychological warfare, it has its tactics and its strategy.

Tactical propaganda is confined to combat units and tends to lead them to cease combat—to surrender or to mutiny.

Strategic propaganda is directed against the entire nation and more particularly against the civilians and the soldiers in the rear areas. Its principal objective is to convince the collective opinion which includes two elements: crowd and opinion.

The crowd is the true field of action of propaganda. Whether it is the incidental crowd resulting from certain circumstances of time and place, a voluntary assembly of individuals of a common idea, or a mass of individuals joined together by an identical influence, the crowd will blindly permit itself to be led. This is in accordance with characteristics emphasized in 1895 by Gustave Le Bon in his *Psychology of Crowds* when he was formulating the law of the mental unity of crowds. These characteristics include the simple mind which discloses only shades and where judgments are spontaneous as well as extreme, and the impulsive mind which urges to instantaneous action with no thought of logic, reflection, or reason. Credulity is another of these characteristics; and there is always the imperious need for believing something, for attaching themselves to something, for seizing onto a symbol, a myth, perhaps more because of its brilliance than its possibilities of saving efficacy.

This is why, in all its aspects and, especially in that of the masses who are

identified today with that of public opinion, the crowd is truly the primary objective of propaganda.

It is for this reason that in the strategic action of propaganda, Mao Tse-tung accords an important role to the insidious setting up of cells among the enemy, the establishment of what Colonel Bonnet calls a "clandestine infrastructure, with its mobile networks, its unseizable agents, its impenetrable bases."

A distinction is also commonly made between concealed, or black propaganda, and white, or open propaganda according to whether the means used leave it impossible to discover its origin, or indicate it is obviously the work of the enemy.

As we have said, the means of psychological warfare are those of propaganda, and may be classed as:

1. Spoken means.—Rumors, radio, loudspeakers.

2. Written means.—Newspapers, pamphlets, and tracts.

3. Visual and illustrated means.—Posters, displays, films, and theatrical representations.

4. Material means.—The parachuting of products or objects which are being strictly rationed within the enemy homeland.

Spoken Means

Of the spoken means, rumor constitutes the most dangerous weapon, perhaps the most effective of the black propaganda. In the majority of cases one does not even suspect that rumors are a weapon of the enemy. They are often started simultaneously in several places which renders them more believable and makes it difficult to trace them to their source. Their first objective is to undermine morale by the shaking of confidence and by creating dissensions among allies. They may serve to learn the truth by stimulating official declarations, but they are also employed for hiding the truth by sidetracking the enemy's intelligence service.

The radio is the ideal instrument for reaching the masses, since it is listened to in the individual homes. By its insistence and its insidious repetition, if the speaker is skillful, it creates an atmosphere favorable to the gradual psychological spellbinding of the enemy, an action which is developed in accordance with a carefully established plan.

Loudspeakers were employed for the first time during the Spanish civil war. The Germans used this means in 1939 for talking to the soldiers of the Maginot Line. They were used mainly for inciting isolated individuals or certain units to surrender.

Written Means

The newspaper—their newspaper—occupies an important place in the lives of people. Whether they realize it or not, they always think the way their newspaper leads them to think. For every newspaper has a tendency, an aim, which determines the application and comments given to the news. That is why under numerous circumstances, principally during the last war, the two camps made use of the dissemination of the newspapers, adopting the form, the mode of presentation, and the tone of the newspapers of the enemy.

But it was tracts which saw the greatest dissemination on all the fronts and which were used by all the adversaries facing one another at all points of the globe. Normally, the tracts are delivered to the adversary by artillery or aviation. The subjects of the tracts are, naturally, the same as those of the general propaganda, but the aim of the majority of them was to lead the enemy units to surrender: that is why they often gave special emphasis to the good situation of the prisoners, the comfort and facilities accorded them. At times, also, they showed the carefree life of the war profiteers in the rear as contrasted with the perilous life of the front.

Visual Means

Duhamel, with an exaggeration one is inclined to believe intentional, wrote:

The cinema is a means of amusement of fools and a pastime of the illiterate—which the intellectuals have let become the most powerful of instruments of moral, esthetic, and political conformism.

It is, however, certain that in an attractive form the cinema may become an efficacious means of propaganda. It has actually become a requirement for the masses, and it is capable of leaving a deep impression due to the visual and auditory attention it requires. It is for this reason that news events and documentary and war films can be insidious instruments of guided information in the hands of ingenious producers.

Art is also an effective means of propaganda, for it is the expression of a culture. Statuary, in particular, may be a source of exaltation to the masses by recalling the worthiness of the great men of a nation. This was the view of Lenin:

In different conspicuous places, on suitable walls, or a few special edifices one could place brief but expressive inscriptions containing the main principles, the most enduring watchwords of Marxism and also, perhaps, condensed statements bearing a judgment relative to this or that great historical event. I consider monuments, busts, or standing figures or, perhaps, even bas-reliefs and groups as more important than inscriptions. A list must be made up of the prerunners of socialism and of its theoreticians and of its fighters and, also, of the masters of philosophical thought, of science and of art. The statues of these great men must be accessible to the masses, that they thrust themselves upon their gaze—special importance must be attached to the dedication of these monuments. Let each of these dedicatory occasions be a propagandistic act.

Material Means

Finally, attention should be called to the fact that during the last war the Allies, for the purpose of showing their wealth, parachuted into the enemy countries articles and products which were strictly rationed there: soap, chocolate, matches.

We may also add the parachuting of ration stamps which, at a certain moment, resulted in a great disturbance in the German system.

But the possession of simple or more complex means leads to no results if one does not know how to use them judiciously. They must be adapted to the ends pursued, selected with a view to their coherent diffusion, and grouped with minute care in order that the propaganda will function like a perfect mechanism in which each gear works together with the rest for a unified result.

Governmental Action

According to General Eisenhower: "Psychological warfare has developed to the point where it may be considered as a definitely specific and truly effective weapon of war."

It is easy to understand that if it is to be effective, a weapon as important as psychological warfare cannot be put into action by capricious whim. It needs to be coordinated with respect to its subjects, its means, its methods, and its application. It requires absolute unity. It requires, therefore, responsibility in the highest echelon. That is why it cannot exist except in the form of governmental action.

In 1921 the Americans had realized the correctness and the necessity for this unity of action. In 1933 Goebbels created a Ministry of Propaganda.

Lenin had already written that:

Unity of propaganda must be achieved at any cost. Since unity of thought exists among the revolutionists, the indispensable unity of the (Party's) watchwords (slogans) must also be ensured.

This he had referred to the political directorate of the constructive work of the state.

Present conceptions tend to consider

propaganda or psychological warfare as an institution of the state, entirely dedicated to the ideology of the state, to the establishment, in a unified form, of its totalitarian or democratic policy.

Psychological warfare is doomed to failure if absolute centralization does not exist. Its motivating ideology must, therefore, be definite, marking with its imprint the cultural bodies in whose name all its propaganda will be put into action at home as well as abroad, and for which, as a last resort, individuals will be asked to risk their lives.

Organization

One is not born a specialist in psychological warfare. This is what Colonel Donald F. Hall states:

The effective psychological combatant is the product of intensive training of an unpublicized kind and of an inestimable value in our military organization. The officer of psychological warfare, if assumed to be perfect, should be a diplomat, historian, editor, politician, an expert in publicity, a soldier-strategist, and an academic psychologist.

Hitler demanded that the true agent of propaganda be a true artist.

He must possess the art of the use of the spoken word as well as that of the written word, that of the editorial article, of the poster, and of the tract. He must possess the gift of placing at the service of his ideas and of his aims the great means which serve to influence the masses: the press, the cinema, the radio. Especially in the era of technical progress where the invention of the radio is only of yesterday while television is probably the fact of tomorrow, it is necessary that efficacious propaganda know how to make use of these auxiliary means for shaping the political will of the people, but on the other hand it must never allow itself to become set in their employment but must, each day, seek out new means and new methods to use for obtaining the desired results.

More concretely expressed, it may be said that the selection and rational utilization of such varied means requires a specialized and minutely trained personnel.

Thus for the campaign in the west of 1944-45 the Allies created the "Psychological Warfare Division" which was directly under the control of the Supreme Headquarters Allied Expeditionary Forces. This division employed 4,600 persons, both civilian and military. They detached sections and liaison officers to the headquarters of the large units.

The experience of World War II was to be profitably used. The studies were continued. Shortly after the beginning of the Korean conflict the Americans felt the need of developing a program of training in psychological warfare for specialist-combatants.

They immediately reorganized the general staff psychological warfare section (G3) and reinforced the psychological warfare division with the combat army. They created the radio broadcasting and tract group composed of a headquarters and of mobile printing and broadcasting companies under the control of the general headquarters of the theater of war. They formed the loudspeaker and tract company, at the disposal of the combat army for tactical operations.

Since that time a definite program has been established aiming at: the orientation of the entire army; training for psychological warfare officers and for enrolled specialists; and lastly, a development of the doctrine and technique of this type of warfare. For the training of the officers a department of psychological warfare has been established at Fort Riley. There are three sessions each year, each one training 24 psychological warfare officers. Another, a three-week

course, is for staff officers. Several tables of organization and distribution concerning psychological warfare serve as a basis for the creation of several radio broadcasting and tract groups, and of loudspeaker and tract companies for the army itself.

Principles

Gustave Le Bon, in *The Psychology of Crowds*, declares that an idea cannot be propagated unless it is subjected to three essential conditions; affirmation, repetition, and persuasion.

This also is the procedure adopted by Pavlov for provoking conditioned reflex.

Normally, the specialists of psychological warfare have not neglected these lessons. Therefore, they have based their action on certain principles, the majority of which derive from previous experiences but some of them going back to the most remote antiquity.

Almost all of the sociologists and propagandists are in agreement in affirming that the best propaganda is the truth. In the first place it is to one's advantage not to be caught in a lie and, secondly, to show that the adversary has not told the truth, at the same time arouses confidence by establishing what the actual truth is. This truth, however, must be presented objectively, with an appeal to symbols in most instances.

However, Hitler claimed that a lie can be believed if it is well conceived. To which Goebbels added: "A falsehood, repeated, becomes truth."

Another principle of psychological war is in the art of the commentated truth. The truth must be interpreted. Propaganda must be based on a fact, on an event. The art consists in the skill of the commentator.

But these ideas must be released in the environment of collective perception, for before propaganda can produce a result, it must be perceived. It is only then that repetition occurs in varied forms to the point of persuasion.

It is of great importance—and this is a third principle—to know thoroughly the environment in which one wishes to act. All propaganda must take account of preexisting attitudes. It will then be able gradually to lead the masses to adopt the desired attitudes without their being overly aware of it.

Lastly, there is a fourth principle: that of timeliness. One must not act except when the occasion is favorable and when circumstances demand it. But when that time arrives, one must act promptly with as much consideration as is possible for the three preceding principles.

Conclusion

Psychological war has become a redoubtable weapon of total war.

While military war tends to destroy the combat potential of the enemy and economic war has as its aim to deprive him of his means of combat, psychological war, directed against an entire nation, has as its objective the surrender of the enemy by undermining the morale of the combatants and of the population behind the front by persuading them that their cause is not just.

The less its means rely on force and physical brutality the more insidious its action on the minds of the people.

Psychological war has become an inescapable reality. In a future conflict it will not only be put in action, but it will be intensified and perfected. No one can escape its demoralizing action unless he is acquainted with its characteristics, its means, and the mode of their employment.

Psychological warfare is a test of morale. The nation which succeeds in safeguarding its morale possesses the best guarantee of its victory, of its survival, and of its liberty.

Atomic War Tactics

Digested by the MILITARY REVIEW from an article by Commandant Cyril M. Mattimoe in "An Cosantóir" (Ireland) January 1956.

EVERY approach to the study of atomic warfare is so overshadowed by the immensity, diversity, and seeming insolubility of its many and great problems that for the average student of military affairs it is difficult to know where to make a start.

Admittedly, there are many aspects which are beyond the reach of most officers, for the very practical reason that they do not have access to sufficient information. A study of the present-day validity of the Douhet Theory, for instance, or the strategic potential of the hydrogen bomb—are subjects which call for such a mass of scientific and other facts that it becomes entirely a job for specialists.

Tactics

In regard to tactics it is a very different matter. Here we have an aspect of atomic war which any officer can tackle—an aspect which is the direct concern of every officer, down to the platoon commander. Lack of detailed information need prove no obstacle. One can travel a long way and do a lot of "atomic thinking" on very limited data; it is not necessary to be an Einstein to do so.

Facts, combined with tactical knowledge, provide the foundation for thinking; and *thinking*, at this stage, is what really matters. It may not produce all the answers but at least it will show what one is up against.

For a general tactical study, only a few fundamentals are necessary and, far from being secret, most of these have been common property for years past. The effects of the bomb—heat, blast, and radiation—were widely publicized after Nagasaki and Hiroshima. Publicized also has been the fact that small atom bombs (or shells) have been developed for use in the tactical role, and that these can be fired by gun and rocket or dropped from the air. It is also known that rockets are accurate; and nobody needs to be told the accuracy capabilities of a gun. All this information has been available for a long time and the only pieces required to complete the picture are ranges of gun and rocket—and, most important of all, the effective radius of the bomb.

There are different sizes of small bombs, but the details of one bomb are sufficient. For this general survey it can be taken that troops dug in will suffer heavy casualties up to 600 yards from ground zero and moderate casualties up to 1,000 yards. Against troops in the open the effect may be doubled or even trebled.

As regards the range of guns and tactical rockets, it can be taken as 25 miles. It is emphasized that these figures are only approximate, but they are sufficiently accurate for our purpose. It should not be forgotten, of course, that where the safety of friendly troops is not a factor much bigger and better bombs are available for use.

With just the foregoing minimum of information, and working from *first principles*, so to speak, the student can apply himself to a study of the various phases of war. This article sets out one such approach. Space restricts it mainly to defense and attack.

Defense

In view of the great destructive power and range of the atom bomb as compared with any previous tactical weapon, the obvious counter is not to be caught concentrated. While an atomic threat remains present, dispersion must be regarded as

an essential feature of deployment. This also applies to digging in which is not sufficient in itself, but when combined with dispersion it can provide a great measure of protection.

Despite the benefits dispersion confers, however, there must be a limit to it, otherwise the cure becomes worse than the disease. Concentration with its risks must be accepted at some level; without it there can be no defensive strength. Between these two conflicting requirements there will always be a clash.

On the basis of not allowing the enemy "to kill two birds with one stone," localities should be so sited that only one can be affected by any one bomb at a particular time. Taking, for argument sake, the lethal radius as 1,000 yards, and allowing 100 percent safety margin, localities should be 4,000 yards apart—working purely on figures. This is a very large gap and clearly it cannot be accepted at the battalion level. If localities within a battalion were so dispersed, the battalion area would be so scattered that it would have no defensive strength anywhere and effective control would be virtually impossible. This degree of dispersion, then, is impracticable within a battalion. Therefore, companies must still continue to be sited on the basis of mutual support between localities, and the threat of an atomic missile should make no appreciable change in the layout of a battalion defensive area.

Brigade Level

At brigade (United States-Regiment) level the same arguments hold good. Fundamentally, the aim of the defense must be to organize sectors, each of which is so strong that the enemy cannot attack without thereby presenting an "economic" target to the defense atomic weapons. This cannot be achieved if battalions are to be separated a distance of 4,000 yards from their neighbors. Units so isolated would be "easy meat" and could be eliminated, one by one, in a ground force attack. The minimum requirement to achieve the desired result is a brigade sector in which battalions are mutually supporting. Command, control, fire support, counterattack, and administration are far less complicated when battalions are not scattered about the country. Future improvements in weapons and equipment, together with possible changes in battalion organization may, in time, permit larger gaps between battalions. But until then, the present layout of brigade sectors is not likely to undergo any sweeping changes.

Division Level

At divisional level the risks involved in an orthodox layout are great. Such a compact defense would present the attacker with an economic target; unacceptably high casualties would result from having brigade sectors too close together; and serious damage to a formation of divisional size could jeopardize an over-all defense. Dispersion is essential; large gaps must be accepted between brigades.

A normal layout of a division in defense would then consist of two brigades forward—with a gap of 4,000 yards between—and the third brigade sited in depth, not nearer than 4,000 yards to the rearmost elements of forward brigades. Precisely because those gaps are large they can be covered—and covered most effectively—by defense atomic weapons without danger to friendly troops; thus a virtue is made of necessity. It is important, too, that defense plans tend to entice the enemy into such areas by day.

At night the scope for employing atomic defensive fires may not be so great due mainly to the difficulty of obtaining adequate information. Darkness affords the enemy great opportunity for infiltration. In the absence of atomic fires, this must be dealt with by conventional artillery fire combined with minefields.

Defense Keystone

In this type of defense the brigade sector assumes a very great importance. It is the keystone of the defensive layout; the brigade becomes the defense entity. Each sector must be thoroughly dug in, stocked, and equipped to enable it to hold out and fight even when surrounded and cut off.

These conditions would seem to imply a static or rigid type of defense, but this must be avoided as far as possible. Fullest use must be made of alternative positions within the sector, combined, possibly, with 1914-18 style communication trenches to ensure flexibility and mobility in the conduct of the defense. For these tasks a brigade organization, comprising just three infantry battalions, is scarcely adequate. Greater firepower is needed.

Future developments are likely to result in the establishing of brigade groups by the inclusion of mortars and more machineguns. These weapons would provide greater scope for flexibility, mobility, and defense, and increase the possibility of assuring mutual support by fire between battalion localities.

Despite its great power, and its defensive capabilities to the front, to the flanks, and within the defensive position, the tactical atom bomb must not be regarded as the answer to all defensive needs. Like every other weapon it has some limitations. Due to its great lethal radius it is not good for close support. Bombs will not be as plentiful as artillery shells. They must be fired with due regard, not alone for the safety of own troops, but also with regard for economy, both of force and of money. Further, their firing is not a matter of pressing a button; time is required for preparation—upwards of one hour, depending on whether a gun or rocket is used.

Digging In

Digging in has now become a major defense factor and deserves particular mention. When properly done it provides a higher degree of protection than is commonly believed. It has, however, one big disadvantage—the time required to do it well. The amount of digging required now to give protection is much greater than ever before. Where previously a divisional position could be organized in terms of hours, it may now take days, even with earth-moving equipment. Once forced out of an organized position, the defender becomes exceedingly vulnerable, and his chances of gaining the protracted time necessary to organize a second position are not good. Such positions may have to be prepared beforehand, or alternatively; the over-all defense must be organized in very great depth. Even this can give only temporary respite; the real solution must rest in the employment of reserves.

Use of Reserves

At brigade and battalion level the use of the atom bomb does not introduce any great change in the employment of reserves. Generally speaking, the difficulties are the same as before except that in certain respects they are intensified, chiefly in regard to the concentrating and moving of reserves and the timing of counterattack.

The size of the reserve at brigade level scarcely constitutes an economic atom bomb target. But actually, by the time the reserve is due to be employed, the attacker's troops will be *in* the brigade sector. Consequently, the atom bomb cannot be employed against the brigade reserve because the attacker's own troops are too close. The chief danger lies in the pre-H-hour atomic bombardment. If this can be survived without severe loss, the problem of counterattack at brigade level remains much the same as heretofore.

At divisional level the problem is more complicated due to the fact that the rear sector can be subjected to atomic bom-

bardment without danger to the enemy's assaulting troops, even when these have penetrated forward brigade sectors. The reserve can, therefore, be pinned down very effectively.

From this there follows an important conclusion. To avoid taking atomic attack in place, the object of the reserve must be to get close to the attacking forces as early as possible. Instead of taking the punch on the glove, so to speak, the reserve must move forward and stepping inside the atomic straight-left, get quickly to the in-fighting position where, paradoxically, they are safer from atomic attack.

One way of doing this would be to have an alternate prepared position close to the forward sectors to which the reserve could move as early as circumstances would permit. Once inside the (atomic) safety area, freedom to launch a counterattack is much less restricted.

On the other hand, lifting troops out of their foxholes to prepare for counterattack has always been a risky business; it is a much more dangerous proceeding now. For this reason there may be something in the argument that the rear brigade can achieve more by remaining in its organized position rather than risk annihilation during a move to a new position or by endeavoring to recapture lost ground.

Attack

The influence of atomic weapons on attack tactics and techniques is, to say the least, far-reaching. The changes involved stem mainly from two factors—the risk involved in assembling troops for attack and the difficulties of movement.

Without air superiority, massing of men and matériel as known in World War II is clearly impracticable. Greater concentration is now available in terms of firepower; smaller concentrations are a necessity in regard to manpower and material. The ratio of these two factors has undergone a change. Heretofore, the attacker aimed at assembling a minimum three-to-one superiority in manpower. Nowadays he may have to be content with much less, at least in the initial stages.

Concentration

Insofar, then, as it applies to the employment of manpower, the atom bomb, by its emphasis on dispersion, can be said to have introduced a new concept of the application of the principle of concentration—a number of coordinated and concentrated thrusts by small forces dependent on skill and speed to get through on several axes. "New style" concentration means several separate efforts, concerted in *time*, against several points, or possibly converging on one point.

In practice this means that a number of units or formations attack along individual axes which are relatively far apart. In favorable circumstances these axes may converge, but the confluence must be achieved close enough to the enemy to ensure that he cannot employ his atomic weapons against it without danger to his own troops.

Dispersion

The standard of dispersion required for attack or, in other words, the amount of troops that can prudently be concentrated in one assembly area is difficult to assess. In defense, a theoretical guide can be established mathematically. In attack, no such method can usefully be employed.

The decision as to what amount of concentration is acceptable must be arrived at by considering the merits of each situation separately. The principle is: avoid being caught concentrated. No standard can be prescribed to cover every contingency. Risks must be taken but the degree of risk will depend on the factors. The following are likely to have a special significance: air situation, scale and form

of attack, enemy and own atomic capabilities, degree of neutralization obtainable prior to and during the attack, time required for deployment, degree of secrecy obtainable, and the mobility of the attacking force.

In considering what form of attack to adopt, some sacrifices may have to be made in the choice of good ground and otherwise suitable axes in order to gain the advantages of dispersion. A situation which previously favored a penetration may now have to be solved by double envelopment, because the latter form facilitates the selection of more widely separated assembly areas and axes of attack. Similar advantages can be gained by using a flank attack combined with a frontal assault.

If a favorable air situation, or the use of surprise, enables the attacking force to assemble close to enemy forward defense lines, the threat from atomic weapons may be appreciably lessened. In small-scale attacks at battalion or brigade level this maneuver should be feasible, but at division and higher level it is less likely to succeed because of the number of troops involved.

Assembly Areas

When large forces are involved, and there is need for dispersion, the leading elements in the assault must be deployed in suitably separated assembly areas like the leading line of pieces on a checkerboard. In order to avoid creating too high a density of troops in forward areas, the remainder, comprising followup forces or reserves, must be held well back like the remaining lines of pieces on a checkerboard.

This style of deployment implies greater frontages and greater depth than hitherto. Difficulties of control, coordination, and fire support are increased. To some extent these can be minimized by good communications. The greatest crux lies in moving forward those elements which initially have to be deployed in depth.

Momentum and Mobility

In order to maintain the momentum of the assault, to reap the benefit of their own atomic fire, and to get inside the enemy atomic "safety area" as soon as possible, the followup troops must be moved forward quickly. But because of the need for dispersion they will have a considerable distance to travel. Meanwhile, the enemy, having been fully alerted by the first assault wave, if not indeed much earlier, can safely bring down atomic fire on the rear concentration areas and on routes of approach. By the use of ground bursts it may even be possible to render areas impassable due to radiation.

It can be argued that similar difficulties, radiation excepted, had to be overcome in World War II in face of air and artillery bombardment. That is true, but the scale of intensity was not so great. Troops in the open are much more vulnerable now. Widespread dispersion was not required then and, consequently, the distances from assembly areas to enemy forward defense lines were shorter.

Essentially, the problem of moving forward the followup troops and reserves is one of time. The longer they take to reach the "safety area," the longer they are exposed to atomic attack; and the longer, too, will the first wave have to fight alone. The answer—using that word advisedly—must lie in *mobility*, but how to achieve it with infantry is our real problem.

Transport can do the job but it introduces so many additional hazards—entrucking, detrucking, vulnerability of vehicle concentrations, and the time lost in travel by dispersed columns—that it may prove a mixed blessing in many cases.

Armor

With armor the problem is not so great. The tank has mobility, cross-country performance, firepower, and excellent communications. During atomic tests in the United States it showed a high degree of

robustness and provided a good measure of protection for crews. Within a few minutes of the explosion tanks moved through parts of an "atomed" area without loss of efficiency and without incurring casualties from radiation.

By these standards the tank measures up well to atomic war specifications. It cannot, however, operate for long in the attack without infantry support. Limited assistance can be provided by infantry in armored personnel carriers, but in order to consolidate the ground won by tanks, infantry formations must arrive quickly on the objective.

If the attacker can achieve even local air superiority and can neutralize the defender's atomic weapons during his deployment, the need for dispersion would not be nearly so great; larger concentration of troops could be risked in forward areas. But neutralizing ground weapons is a big task. They may prove difficult to locate, and since, presumably, they will be sited with protective cover, they may prove difficult to destroy. Even if tactical atomic weapons are neutralized, their role may conceivably be taken over by guided missiles. Counterbombardment will be of great value but it will scarcely provide immunity from atomic attack.

Employing Atomic Weapons

The tactical employment of atomic weapons in attack will resemble that of heavy artillery. In fact, for planning purposes they can be regarded as superartillery. Because of the great lethal radius of the bomb it must be employed well ahead or to the flank of friendly troops. Its great range enables it to strike deep into the enemy rear. It can seal off a battlefield and prevent the movement of reserves or cut off withdrawal much more effectively than any conventional artillery.

But the enormous cost of producing atom bombs demands that their use be restricted to worthwhile targets. This fact, plus the danger to friendly troops inherent in its indiscriminate use, compels a tight system of control. Authority to fire must be reserved to a level of command which has the best information, combined with the practical resources to direct the application of fires. In this matter the commander will require, in addition to his artillery advisor, a technical atom advisor.

Information is vital for planning of fires. When timely and accurate it can be productive of prodigious results; when inaccurate it can result in great waste of effort. Equally important, of course, is the denial of information to the enemy.

Field Artillery

Field artillery will still retain its responsibility for close support fires. Present methods of planning these fires will remain unchanged, but deployment of artillery will be much affected. The days of convenient and compact gun areas are gone. Battalion areas, like brigade sectors, will have to be far enough apart to ensure that no two of them can be hit by one bomb. The layout of batteries within a battalion will also be affected, but not to the same extent.

The need for mobility and cross-country performance is likely, in time, to put the towed field gun out of business in favor of the self-propelled type. Increases in frontages and depth will necessitate greater range in close support artillery weapons. The vulnerability of guns highlights the importance of mortars which can be more easily protected by digging in; at present, their short range is a disadvantage.

Air Factor

The air factor in atomic war has two aspects, often not clearly distinguishable from each other—the strategic and the tactical. Our concern is with the tactical, but the strategic may profitably be mentioned in passing.

Of all the factors involved in future war, air is *the* most important. Some may argue that in the atomic age it is the only factor; that of itself it can produce a final decision; that a major ground clash of arms will be unnecessary; and that recalcitrant armies will have their spines smashed. "Get there fustest with the mostest" bombs!

But countries fully in the know show no sign of dispensing with their armies, nor are they likely to until time proves that ground forces are superfluous—and only a war can decide this. They have decided, despite the strategic potentialities of air bombing, that ground forces are still necessary.

The character of armies may change. New concepts of organization and employment may emerge—air-transported armies, airdrop supply systems and the like—but in the final analysis, no matter by what mode it arrives or what weapons it uses, the army fights on the ground.

In its tactical implications the air factor enters the atomic arena with all its known characteristics from the last war and, in addition, a tremendously increased punch. With less effort, and to a much greater degree, it can inflict casualties, restrict movement, disrupt supply, deny observation, and limit the size of troop concentrations.

What countermeasures are available to ground forces? The most obvious are: proximity to enemy troops, dispersion, digging, night movement, mobility, cover, camouflage, and deception. In addition, adverse weather may limit flying operations; the number of bombs available may be limited; and certain conditions of wind direction and rain may temporarily limit the use of the atom bomb because of radiation dangers to friendly troops. Since air bombing is not nearly as accurate as gun and rocket bombardment, much greater safety precautions are necessary.

Are these countermeasures adequate to offset the advantages of air superiority? The answer to this must be "No"—with certain reservations. In World War II under conditions of air inferiority many successful actions were conducted which should never have been fought if the book of rules had been consulted. But since then, air striking power has increased so enormously that only a combination of favorable circumstances combined with superior leadership can enable an attack to be launched in the face of air superiority.

In defense the prospects are much better since the effects of air superiority can be considered mitigated by the energetic use of countermeasures. Numerous examples can be quoted of successful defense in World War II despite prolonged and heavy bombardment. Whether a future conflict will see a repetition of this is a matter for conjecture.

I am confident that United States airpower is clearly out ahead of its nearest competitor. I believe further that if we stay on course there will be no time in the future when United States airpower will be insufficient to its great role in the task of maintaining peace in the world.

Secretary of the Air Force Donald A. Quarles

Soviet Strength in the Baltic Area

Translated and digested by the MILITARY REVIEW from an article by Colonel Chabanier in "Revue de Defense Nationale" (France) July 1956.

THE development of the Soviet naval forces in the past decade has been so rapid that some experts have expressed the opinion that it is really the number two seapower in the world in point of armament. It is organized into six fleets divided among the Arctic Ocean (Murmansk), the Baltic Sea (Paltiski), the Black Sea (Sevastopol), and the Pacific Ocean (Vladivostok).

An examination of the composition of these naval forces reveals the principles of the Soviet naval strategy today which is manifested by the absence of modern battleships and airplane carriers from their fleets.

All of the naval aviation is land based which prevents the Soviet surface naval forces from venturing into the oceans and limits their action to the defense of the coasts of the Union; to rapid interception action against the lines of communication of the adversary; and to the support of amphibious or land operations.

Although divided between four large maritime regions, the principal body of these forces, both in point of view of quality and quantity, is concentrated in the Baltic and the Barents Seas. The two fleets based in the Baltic are reported to comprise a total of two battleships, 10 cruisers, 32 destroyers of all types, 14 escort vessels, 200 submarines, 150 motor torpedo boats, 250 minesweepers, some 100 landing boats, and 500 land-based planes. This matériel is permanently manned by 150,000 men serving aboard it.

The Navy of Poland consists of two torpedo boats, four submarines, five patrol boats, 12 coastal escort vessels, 17 minesweepers, two training vessels, one hydrographic vessel, and one tanker.

In addition to the Soviet and Polish naval forces, the Russian High Command in the Baltic has at its disposal German naval forces belonging to the German Democratic Republic.

In February 1950 a "Special Purpose Main Department" was created in the German "General Directorate of Special Employments" with the view to the establishment of the bases for a future naval force which was designated *Seepolizei* (naval police), and which, on 1 July 1952, became the *Deutsche Volkspolizei See (DVPS)* (The German People's Police-Naval Branch), a separate naval entity.

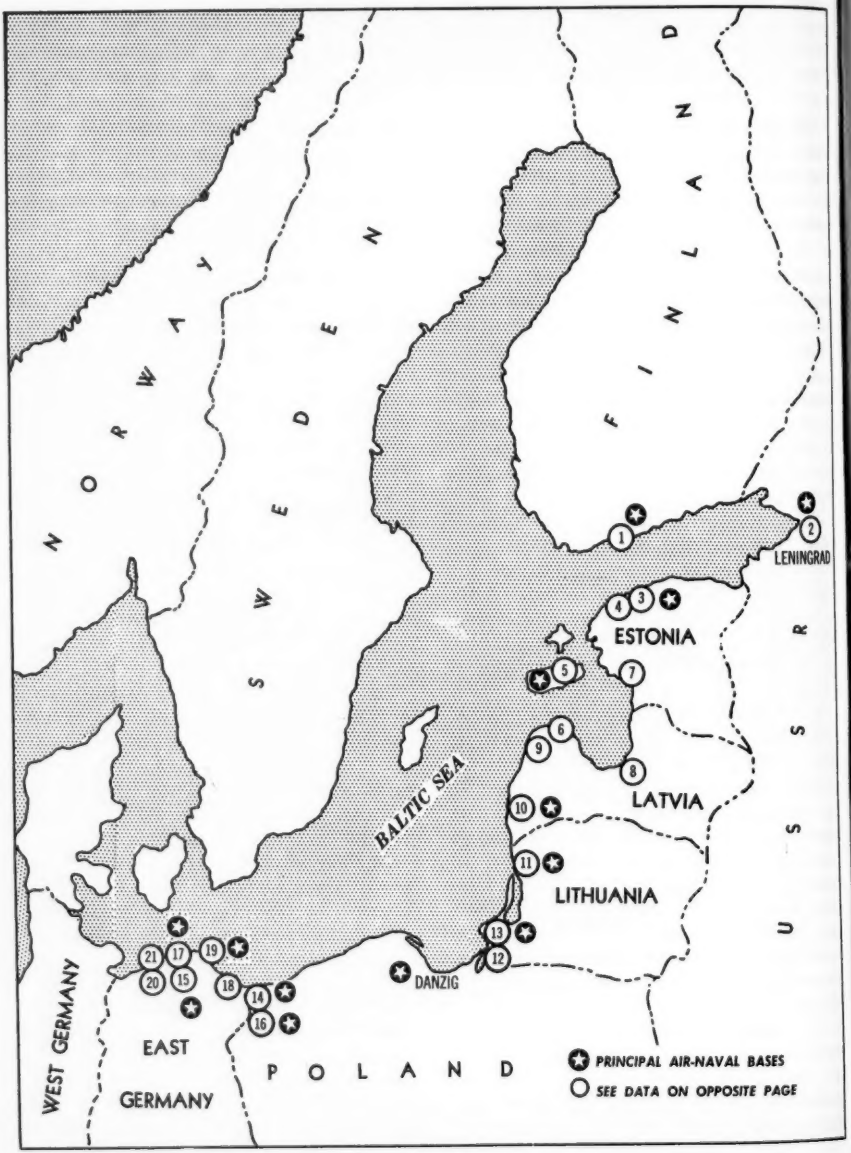
At the beginning of 1954 it comprised about 7,000 men. This camouflaged navy can be reinforced by a high seas fishing fleet composed of 150 vessels of from 350 to 450 tons which travel from 18 to 20 knots per hour and can be instantly transformed for duty as minesweepers or for guarding the coasts.

The hydrographic services, the coastal radio network, and the marine rescue services are likewise integrated into the *DVPS*, their uniforms being those of the former German Navy, while the river police wear the uniforms of the regular police.

All these naval forces are placed under Soviet command and are supported by a network of land bases, coast fortifications, and an aerial, highway, and railway infrastructure.

Naval Construction

In July 1946 Stalin ordered a vast plan of naval construction. The results of the execution of this plan are indicated on the map on page 96. The progress of East Germany is an excellent demonstration of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21
PRINCIPAL AIR-NAVAL BASES
SEE DATA ON OPPOSITE PAGE

(1) PORKKALA.—Seacoast batteries block entrance to Gulf of Finland.

(2) KRONSHTADT.—Three lines of fortifications with 250 to 300 seacoast guns.

(3) TALLINN.—Naval repair up to 2,000 tons: 6,000-ton drydock and many coastal batteries.

(4) PALDISKI.—Ice-free naval base. Underground submarine base with undersea entrance. Seat of naval headquarters. Several batteries of 150-mm coastal guns.

(5) ÖSEL.—The Moonsundi Archipelago. A very heavily fortified naval base. All Estonians have been evacuated.

(6) SWORBE.—On Cape Domesnes west of the Gulf of Riga. Crews of coast guard vessels are Asiatics who speak no Russian. Weapons here dominate northwest channel.

(7) PÄRNU.—Harbor can accommodate light units of the fleet.

(8) RIGA.—Many ship basins, shops, and launching ways. Arsenal and barracks. Base for patrol boats and air-naval formations.

(9) VENTSPILS.—Naval yards, big harbor and breakwater. Patrol boat base. Factories for submarine nets and storage batteries.

(10) LIEPAJA.—Ice-free naval base, 600-foot drydock, many docks, and many shops for building and repair of ships. Torpedo boat and submarine base. Coastal batteries of 130-mm and 180-mm guns.

(11) KLAIPEDA.—Shipyards and school of navigation. Submarine base with armored shelters.

(12) BALTIISK.—Port facilities protected by coastal batteries of 130-mm guns.

(13) KALININGRAD.—Port serves as base for coast defense vessels.

(14) SWINJOWICE.—Polish fortified zone ends here. Consists of a dense line of fortified points. All population to include Polish troops has been evacuated from coastal area. Sea zone six miles wide closed to navigation. Crews of coastal shipping cannot be composed of inhabitants of the coast. Usedom Island (German) has enlarged port and operates directly under the Soviets.

(15) THE HELA PENINSULA.—From here to the east is a very heavily fortified zone with coastal artillery in concrete emplacements, antiaircraft batteries and machinegun emplacements. Construction by prisoners, disciplinary battalions, and the Polish Labor Service.

(16) SZCZECIN. — Employees (15,000) building submarines in the Vulkanwerft shipyards. A double-line railroad track which is reserved for military use connects this port with Kaliningrad. A great naval base under construction. The USSR and East Germany have free access to the port.

(17) PEENEMÜNDE. — German Navy training center. Construction of guided missiles and launching ramps located here.

(18) WOLGAST.—Control depot for *Volkspolizei* (uniforms, light weapons, antiaircraft guns).

(19) RÜGEN.—Important air, ground, and naval base. Many coastal weapons, submarine base and artillery range.

(20) ROSTOCK.—Many shipyards with freight ships under construction, heavy cruiser *Komintern* under repair. Airfields for jets and base for hydroplanes. Darss submarine base now functioning.

(21) WISMAR.—Shipyards build antiaircraft destroyers and submarine tenders. Repair center for *Volkspolizei See.*

what has been accomplished. In 1939 the shipyards of the German Democratic Republic employed 6,500 workers; in 1955, 55,000. Seventy percent of the East German shipyard production is reserved for the USSR. The value of shipping units delivered to the USSR by this industry in 1953 reached the figure of 24 million marks.

In order to protect itself against foreign intelligence services, the Soviet High Command has taken rigorous measures with respect to the native populations of Estonia, Latvia, Lithuania, and East Prussia. Tens of thousands of the Estonian and Latvian fishermen were transferred, along with their families, to the shores of the Sea of Okhotsk under the designation of "volunteers" to exploit the "better fishing waters" of this sea. All the peoples of the coastal districts of these areas have been forcibly evacuated to White Russia or Siberia, and the districts populated by colonists from Leningrad and White Russia. However, a coastal belt of four miles was left entirely without inhabitants.

This vast naval and land organization is complemented by a daily increasing aerial infrastructure. The Soviet naval forces do not make use of shipborne aviation in the Baltic: the proximity of the coasts ensures them quickly alerted air support. The construction of airbases or of advanced airfields in the vicinity of home or ports of departure of the fleet continues at an accelerated pace.

Airfields

The USSR began by the restoration of all the airfields of the Luftwaffe of the last war located in German and Polish territory. Under the name of transportation and evacuation bases, the airfields of Lithuania have been returned to operation. All the airfields along the coast from Klaipeda to Tallinn (including those of the Moonsundi Archipelago) are in usable condition. The largest of them are being provided with the installations and runways required for jet aircraft.

For the training of the aviation personnel of German Democratic Republic, the Soviet Command has proceeded in accordance with the same methods which resulted in the resurrection of the *Kriegsmarine* (German Navy).

After three years of preparation the *Deutsche Volkspolizei Luft (DVPL)* (German People's Police, Air Branch) was created on 1 July 1951. Its strength on 1 October 1953 was 6,000 men, with plans for reading the figure of 10,000 by the end of 1954. Its formations, generally speaking, are grouped in the southwestern part of the German Democratic Republic. However, there is a coastal antiaircraft defense school in operation at Stralsund.

Information with regard to military aviation is still more difficult to gather than for the ground units because of the secrecy which surrounds these new installations. The instruction and training of the personnel is carried on in the airfields occupied by the Soviet aviation. The planes of the *DVPL* bear the red star and are thus often confused with Soviet military aviation.

Guided Missiles

Disturbing as the development of the airpower of the USSR may be, there is another even more disturbing domain which the Russians surround with the most perfect secrecy: that of guided missiles. From Finland to the Black Sea and from Arkhangelsk to the Bering Strait, the Soviets have constructed launching ramps for guided missiles directed toward western Europe, Canada, and the United States.

The majority of the ramps along the western frontiers of the USSR are on the shores of the Baltic with a more marked density on the coasts of the three Socialist Soviet Republics of Estonia, Latvia, and Lithuania, on the shores of Poland, and on

the island of Rügen. The total number of them may be estimated as some 20 principal bases, each equipped with four groups of 18 launching devices—enormous tubes of six meters in diameter located in underground galleries 80 meters in length by 12 meters in width. These installations, invisible to the air observer, open only at the moment of launching.

In 1949 the Soviet Command created a special organization for this new arm headed by the airplane designer, General Yakovlev. His authority includes research, the production of these weapons, and their strategic employment.

The models manufactured thus far are said to be derived from the German models of the last war: *V-1* bombs and improved *V-2* rocket projectiles. In the Peenemünde laboratories, Professor Artiakanor, a Russian scientist, is working on the design of the new *A-10* multistage rocket. The research center for these weapons is located at the Tsain Institute in Moscow, with branches at Kuibyshev and Uralskoye. Experimental stations are in operation at Valdeki (south of Tallinn) and at Perna (near Elbing). An institute of aerodynamic research, established on the island of Rügen, devotes one of its sections to missiles catapulted from launching ramps.

It appears that the Soviet Command has two objectives in the employment of these weapons: the covering of the western entrances to the Baltic and the neutralization of the Swedish coasts.

The installations located farthest to the west are those on the coast of the German Democratic Republic from Rostock to Peenemünde, and on the island of Rügen pointed toward the Danish island of Bornholm.

The bases situated on the Polish coast at Deep, Kolobrzeg, Rüsterort, and Hankenhagen make use of the testing ranges whose limits are said to include the island of Ösel (Saaremaa) in Estonia some 700 kilometers distant. Pointed westward, the missiles are capable of reaching the Ruhr.

In the Riga sector and on the Moonsundi Archipelago the launching ramps would be able to send the missiles as far as the mining center of Kiruna in the northern part of Sweden.

Finally, by means of their coastal installations in East Prussia and Lithuania, the Russians could dominate the Baltic by their guided missiles.

The Russians have been carrying on their work in the underground installations (which were captured intact in 1945) of the "mittelwerk" plant in the Harz Mountains of Germany, ensuring the regular supply of the launching bases located in Thuringia. These missiles are able to cover the Rhine bridges and, if necessary, to reach the great logistical ports of Rotterdam and Antwerp. Finally, launching ramps have been constructed in the Pilsen and Hradec areas of Czechoslovakia.

The over-all impression produced by the Soviet activity in the field of guided missiles is one of enormous technical effort and considerable accomplishments.

The enumeration of the installations that have been built up by the Soviets from Wismar (East Germany) to Tornia (Finland) would be incomplete if the opening of many new auto routes were not mentioned.

Railroads

As for the railways, these are being improved by a changeover to the Russian gauge of the principal lines serving the rear areas of the Soviet forces of occupation in Europe, over the general transversal belt between Kaliningrad and Bucharest. The problem of the utilization of European rolling stock on the Russian railways was one with which the German Command had been faced in World War I. The solution was the modification of the gauge of the trucks of the German or Polish equipment. The reverse was not possible because the Russian rolling stock exceeded the maximum permissible width

of the European lines. A station for the transformation of the railway rolling stock had been constructed for this purpose on the Polish-Soviet frontier.

The present solution, which requires more time and is more costly but is more satisfactory, consists in increasing the gauge of the European lines in the occupied territories by seven centimeters. Even if the transformation of the lines in the Baltic region does not go beyond the new western frontiers of the USSR, it has, on the other hand, assumed a notable development in the satellite countries: Czechoslovakia, Hungary, and Romania. The work accomplished on the European railways which have been changed over since 1945 is considerable since it includes, in addition to the widening of the roadbeds and tracks, the widening of bridges and tunnels. One can now see freight or passenger trains arriving at Kaliningrad (east Prussia), at Morava(Czechoslovakia), at Budapest and Szeged (Hungary), at Ploesti, Bucharest, and Tulcea (Romania) which have proceeded without interruption from their points within the USSR. In the neighborhood of the Baltic coasts this transformation is being continued clear to the Oder-Neisse line: Frankfort on the Oder and Szczecin will become logistically equipped bases of departure.

The lines serving the Baltic area open to Soviet equipment at the present time are: all the Estonian railways, the Moscow-Riga, the Moscow-Kaliningrad, the Leningrad-Bialystok, and the Riga-Kaunas lines.

Finally, on 19 February 1955, the direct rail connection between Moscow and Berlin was realized for the first time thereby eliminating the transfer of freight or passengers at the Soviet border.

Radar Screen

It is necessary that this gigantic organization be shielded from indiscreet foreign observation, and for this reason it is covered from Wismar to Porkkala by an immense radar screen to detect incursions from the air or sea.

This protection is supplemented particularly on the German coast by:

Signal stations (Barandorf, Boltenhagen, Poel Island, Wustrow, Warnemünde, Darsser Ort, Cape Arkona, Stubenkammer, and Ahlbeck).

Direction finder stations (Tarnewitz, Stubenkammer, Greifswalder Island, Ahlbeck, and the island of Rügen).

Signal communication stations (Wismar, Rostock, Stralsund, and Wolgast) connected directly with the headquarters of the *DVPS* and with Berlin.

All the various ports and bases of Usedom Island and Tallinn possess similar installations but apparently not so dense.

The disposition in the Baltic area is reinforced by a sub-Arctic military system constituted by the northern fleet (four cruisers, 17 destroyers, nine escort vessels, 80 submarines, and 800 land-based planes with a total of 60,000 men constituting its crews), the naval bases of the Barents Sea, the line of airfields of the Arctic zone, new means of communication (highway and railway networks in annexed Karelia, and the Stalin Canal from Belomorsk to Leningrad), and the infantry divisions and brigades of naval infantry, and of security troops in garrison along the new Fino-Soviet frontier.

Conclusion

As if all these politico-military measures were not enough to indicate clearly the Soviet intentions, the Kremlin informed the West of its intention to make the Baltic area a zone of Russian influence by the publication, in the fall of 1952, of a document entitled, *Directives Relative to the Five-Year Plan for the Development of the USSR During the Years 1951-55*. They place the emphasis on the economic development of the Baltic republics incorporated into the USSR.

The very nature of the projects undertaken—electric installations, canneries, auto routes, hospitals, and shipyards—correspond more with the requirements for military bases than with those of a rather scattered population. This economic development betrays the intentions of a Soviet High Command concerned with ensuring an even greater national potential measuring up to the politico-strategic ambitions of the USSR in case of a long war.

What can we logically conclude from the study of the military means enumerated here? Their installations were obviously not dictated by chance, but appear to be the manifestation of the execution of a carefully elaborated plan put into operation even before the beginning of the "cold war"—in fact less than a month after the signing of the armistice of 8 May 1945.

What can be the nature of the conflict that is being prepared for by the masters of the USSR? Will it be offensive or defensive? It is not possible to say with certainty that it will assume either of these two forms: we can only hypothesize, beginning with a disposition which is certainly defensive in nature and manifesting itself by the establishment of air-naval bases on the northern flank of NATO and by the presence of large naval forces in the Arctic Ocean.

The Soviet Forces "Cuts"

Digested by the MILITARY REVIEW from an article by Guards Major M. F. Vassiliev in "An Cosantóir" (Ireland) September 1956.

BEFORE examining the significance of the reductions in the armed forces of the USSR, announced early last summer, it is necessary to refer to some facts of recent history.

Toward the end of World War II the effectives in the Soviet Armed Forces amounted to more than 10 million. In the period 1945 to 1948 the first reduction of army effectives was carried out, but even then the number remaining amounted to four million. By the time of the Korean conflict the army strength had been augmented by half a million, and by 1954 the over-all strength of the armed forces had reached five and a half million, distributed among the services as follows:

Ground Forces	2,600,000
Air Forces	800,000
Naval Forces	600,000
Frontier Forces	700,000
Internal Security Forces and Convoy Service	500,000
Miscellaneous	300,000

There were at that time some 227 divisions made up as follows:

Infantry	52
Arctic Infantry	6
Arctic Armored	1
Cavalry	5
Artillery	58
Armored	63

In the spring of that year (1954) the Armed Forces Command announced a reduction in the forces of 640,000 but this referred only to the infantry, transport, artillery, and, in part, to specialized units such as police services.

At the present time the Soviet Air Forces have 8,000 fighter aircraft of which three-quarters are jet-engined. There are 6,000 fighter-bombers and bombers, 1,500 strategic bombers, and about 5,000 reconnaissance and transport planes.

Proposed Cuts

The reduction of 1,200,000, announced last year, is distributed principally among

the infantry, cavalry, and, to some extent, the artillery and armored forces. But, at the same time, all arms of the forces will be significantly reorganized and the establishment of the airborne-paratroop arm is to be increased. The number of infantry divisions will be reduced. The same applies to artillery divisions, antiaircraft units, and even armored divisions which are to be rearmed with atomic weapons.

In the air forces a reduction in the number of obsolescent bombers and other aircraft is accompanied by a rearming and reequipping with the *D-37* and *D-39* jet bombers which correspond to the American *B-47* and *B-52*. These Soviet bombers possess a great radius of action and are suitable for atomic attack.

The number of tanks will be reduced but only for the better reinforcement or rearmament of the armed forces of the satellite states. The number of tanks is in the region of 40,000 and about 5,000 are added to this each year.

It is necessary to emphasize, then, that the reduction in the armed forces was called for principally by the rearmament and reorganization resulting from their adaptation to the conditions of atomic war.

Mobilization Plan

The war mobilization machinery has been considerably overhauled. Its plans have been adapted to the possibility of a sudden outbreak of war. The reserve cadres are expected to have a stabilizing function, as will the completion of divisions as to personnel and equipment. The machinery will also operate according to a plan designed in advance for the forces and industry.

In laying the basis for economic planning of the USSR the demands of military mobilization were put to the forefront and special attention was devoted to the adaptation of heavy industry to form the foundation of a mighty war industry. Taking into consideration the possibility of the outbreak of war with western countries, and above all with the United States, new and grandiose industrial centers are being set up far from the frontier regions of the Soviet Union, in the Urals, Siberia, and Turkestan. Attention is also being devoted to the intensive development of the production of metals, coal, and oil, and for this other large-scale industrial centers are being created at Karaganda, Euba-Neft, Kuzbuss, Balkhash, Zapolyarye, and other places.

Light industry is also being extended. Its increasing products are not planned to satisfy the wants of the civilian population, but are going to the army, or, to a large extent, into special and untouchable stockpiles being built up for use in the event of war.

Great supplies of provisions are similarly being accumulated. This has resulted in the agricultural population in many districts being obliged to travel to the towns to buy their own requirements.

(During World War II, when the Germans captured a district, town, or province in which, from the moment of the outbreak of war, all products and goods had been disappearing from the shops, they inevitably found a great number of stores with colossal stockpiles of provisions, textile goods, and footwear accumulated long before the war.)

Bureaucracy Blamed

The Soviet population has keenly felt this lack of goods and the hardships of the supply position in the majority of cases because they do not understand the idea behind it all. To the ordinary Soviet citizen it appears that all these shortages of goods and foodstuffs have been due to disorganization in the supply system and because of speculation and waste on the part of lower echelons of the economic system; and perhaps, to a lack of understanding how to plan on the part of the supply and distribution institution, the

Markomat. Many, of course, see the shortages as a manifestation of the bureaucratic outlook of certain directing personnel.

In the Soviet press much comment is devoted to bureaucracy in the Soviet system.

All this is true to a certain extent. Pilfering of goods and foodstuffs does flourish. A clumsy and formalized approach to planning does exist. But, basically, the inadequacy of supplies for the population was brought about as a result of an intentional and cunning system, in accordance with the basic plan, which dictates and directs the whole development and form of the Soviet economic system, namely, the plan for mobilization.

Based on the mobilization plan, also, the construction of main railway lines, highways and unmetalled roads, and waterways is being pushed ahead. Living accommodations, cultural and public buildings, clubs, schools, palaces, children's homes, and hospitals are, in the majority of cases, being constructed with a view to converting them to recruiting centers, assembly points of units, barracks, and military hospitals on the very first day of war. The role of the labor force of the country, including forced labor, is defined in the plan. Generally, this is the carrying out of appropriate tasks in industry and transport.

The mobilization plan is designed to operate in two different ways. First, in conditions of peace it operates as a system of preparing the population and the economy of the country for war. Second, it defines how and in what direction the entire life of the country will go from the first day mobilization is declared. From time to time exercises are held to try out all of the machinery as it would operate during the period of transition.

The Soviet budget is designed to give effect to this plan. The Soviet's many millions are oppressed with colossal indirect taxation, marked under the title of "turnover tax" or "profit tax," with direct taxes collected by deduction from pay and annual contributions to state loans. On the expenditure side of the budget, apart from basic allocations to military needs, a great proportion goes to industry, argiculture and transportation, to preparations for war, and to the development of such branches of the economy and constructional projects as would, from the beginning of mobilization, serve military needs.

The Soviet population is little considered in all this and being ignorant of its aim is working hard and laboring for the war toward which the leaders of the Soviet Union and the Communist fraternity, generally, are feverishly preparing.

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Ground Forces in Amphibious Operations

Translated and digested by the MILITARY REVIEW from an article by Colonel Le Hagre in "La Revue Maritime" (France) October 1956.

THE landing of an extensive combined-arms force on an enemy-held continental coast is a grave and hazardous undertaking. The successful accomplishment of such a landing requires minute and detailed preparation, and demands a high degree of superiority in naval, air, and ground forces. The air and naval forces must attain a near-absolute superiority in the area in which the landings will take place, and the ground forces must certainly possess superiority over the enemy forces in decisive places and at decisive times.

The initial concern of the air force is in preliminary destruction of the enemy communications. Once the assault is launched, the aviation will intervene in the battle with the view of maintaining a relationship of ground forces favorable to the assaulting force by preventing or slowing down the movement of enemy reserves and supplies.

As soon as the operation has been set in motion, a race begins between the enemy reserves converging on the beachhead and the invading force landing on the beaches—a race to achieve superiority in military power in the beachhead area. The principal weapon of the invading force in retaining initial superiority is secrecy, at least as concerns the time and place of the landing.

The planning of such a landing operation must take into consideration every possible contingency. The planning must not start with a maneuver based on the troops available for the operation. Rather, it must start with the strategic objective sought, and by backward planning arrive at the means required on a basis of enemy capabilities.

Beyond the normal planning and training for an amphibious assault, the invading power should make every effort to acquire the sympathy of the population, especially when the landing takes place in territory previously conquered by the enemy. Skillful propaganda must convince the inhabitants of the necessity of the military operation, and the invasion itself must be staged in such a way as to spare the friendly population as much as possible.

The consolidation of the beachhead actually constitutes the beginning of a corps and then army operation. The divisional mission of assault of the beaches evolves into a corps mission when two or more divisions have joined beachheads and expended sufficiently to protect the beachhead area from field artillery fire. Its forward limit must not only assure the safety of the position, but should also be designed to facilitate the continuation of the offensive. The beachhead is then enlarged to accommodate the vast amount of supplies and services that will inevitably be needed, and the landing operation is essentially terminated. The ensuing phase becomes a normal breakthrough operation.

New Weapons

What are the foreseeable repercussions of the employment of the new weapons (the atomic weapon, helicopters, transport aviation, and guided missiles) on a major landing operation?

In the past the advent of new means, whether the horse, gunpowder, or the plane, have had only progressive repercussions on the tactics of arms and armies.

Thus hundreds of years separate the appearance of the first firearms and the disappearance of individual armor. It was many centuries after the appearance of the stirrup that mounted forces, in general, adopted the equestrian technique which enabled the rider to profit from all the advantages his mount presented.

But there is nothing in these comparable to the atom bomb which multiplies by 10,000 the effect of the most powerful bombs theretofore employed. For this reason all traditional ideas appear to be profoundly shaken. Certainly, it is no longer possible to predict the form of future wars by extrapolation of the curve of the evolution of past forms of war.

To the particular difficulty originating from atomic armament is added the complications arising from the extraordinary rapidity of technical progress. The limitless possibilities that are offered by the new techniques place the military thinker in a cruel predicament. He has no way of knowing but what the fundamental facts on which he bases his reasoning have not been largely exceeded by new inventions which are being carefully kept secret. Nevertheless, we cannot eternally ignore the new armaments under pretext of prudence, but it must be remembered that the value of our conclusions may be continually rendered questionable by technical progress.

The atomic weapon, due to the enormity of its effects, opens extremely valuable possibilities for the execution of an amphibious landing. Once the high degree of air superiority necessary for the success of such an operation is acquired, the fire preparation can be effected in a greatly reduced length of time. Two or three months will no longer be necessary to ensure the softening up of the defenses of the landing area—only a few days will be required. The crushing of the defenders of the beaches may be done during the hour which precedes the landing of the assault echelon by means of atomic air bursts to avoid residual contamination.

The destruction of the defensive works of the coast artillery and of the launching ramps of the enemy missiles can be facilitated by means of our own missiles with conventional or atomic warheads and launched from the decks of naval vessels or by airplanes. The effects of the air and naval support will thus be considerably increased.

The use of helicopters combined with a larger employment of airborne forces—if control of the air has been previously achieved—will permit a considerable acceleration of the tempo of the operation. The employment of helicopters, and of aerial transport fleets, joined with the utilization of fast and powerful, well-adapted naval transport means will, without any doubt, give to logistical support a suppleness and power never equalled with classical means.

Of course, the advantages of the new armaments do not possess a positive side only. The atomic weapon, employed by the enemy, presents manifest dangers. It is very certain that the high degrees of superiority thus far sought in the air and naval domains no longer suffice. It will be necessary to add to this an equal degree of superiority in the efficacy of the atomic missiles. This superiority may, moreover, be limited initially to the area of the landing zone.

Calculated Risk

A landing operation cannot be performed unless the calculated risk gives a large proportion of chances of success. The prior destruction of the enemy's means for the transportation of explosives and, particularly of his launching ramps, is certainly a new essential condition. Is it impossible to realize this condition? It is very certain that it will never be realized in an absolute way. The enemy will always have a few planes or a few missiles capable of delivering the atomic weapon.

Thus a landing will always be effected under the threat of an enemy atomic attack. The only thing that one can hope to obtain is to reduce the possibilities of the launching of an atomic weapon by the enemy to a degree analogous to the final relationship of the air forces in the zone involved in the landing operation. It seems, therefore, that it would be chimerical to think of destroying all possibility of the enemy's atomic action in this zone.

It is generally said that wide dispersion is necessary for the survival of ground forces in an atomic war, but how can troops be dispersed in the limited area of a beachhead? This simple question shows that the somewhat processional train of events of historical landing operations must be revised. We can no longer dispatch assault units to conquer a bridgehead which we will later consolidate. It becomes necessary to seize possession of the essential points of the consolidated bridgehead immediately in order to have sufficient space for dispersion of all of the first echelon of the invading forces.

The joint employment of fast amphibious means, of helicopters, and of parachuted or airborne forces must permit rapid coverage of the objective in depth. The frontal attack by way of the beaches can even be shifted in time with respect to the aerial assault. The seizure of the beaches will no longer have any other purpose than the rapid unloading of the heavy matériel and, especially, the armored units necessary for the support of the operation. These methods ensure dispersion on the sea and on land and harmonize with the conditions for survival.

Naturally, such action must be preceded by an extensive atomic preparation over the entire surface that is the object of this vertical invasion. This is a principal condition for success.

Dispersion and Mobility

Even though the forces must remain dispersed in order to survive, they must still concentrate their efforts in order to conquer. They will succeed in this if each elementary dispersed unit, infantry, tank, or artillery battalion is able to join its fire with that of its neighboring units and if its mobility permits it to profit from the effects of the fire.

During the course of the offensive phases of the combat, the limit of the dispersion of the units will be less determined by the radius of the effective action of the enemy atomic weapon than by the necessity of maneuver, both by movement and by fire. This obviously implies great mobility on the part of the elementary units. They must reach the favorable positions for firing and the bases of departure for their assault as quickly as possible. They must be able very rapidly to seize the favorable, sometimes fleeting opportunities offered by their fire concentrations for getting into the enemy's disposition, thus escaping the risk of atomic fire. Lastly, in order to reduce the effectiveness of the enemy's atomic weapons during the short periods when certain units, getting close to others, create the risk of provoking an atomic reaction, they must be protected as much as possible from the effects of atomic radiation and heat.

Very great tactical mobility and protection conferred by shielding are the very characteristics of armored units whose action will predominate in such operations.

Since parachute forces and forces transported by helicopter, due to their mode of entering battle, will initially possess but a limited number of caterpillar tread and armored vehicles, they must use transport helicopters on a permanent basis. These alone are able to give that great tactical mobility without which the effectiveness of offensive action is in danger of being compromised by the dispersion which is a necessity for survival.

In a general way the airborne assault forces (by planes or helicopters) will play the more important role, and the amphibi-

ous landing proper becomes the indispensable and irreducible support.

Logistics

There remains a final and vital difficulty to solve. The considerable mass of means necessary for the maintenance of the forces assembled in the bridgehead must be brought ashore. It is often asserted that the employment of the atomic weapon simplifies logistics by reducing the mass of the supplies—particularly of ammunition. This assertion merits a little further examination. The atomic weapon does not do away with the classical projectile. Possibly we will need less artillery shells, but guided missiles and the electronic equipment necessary for their control create new logistical burdens. Moreover, the amounts of motor fuel used show no signs of a coming reduction. It is wise, then, to count on a logistical load for the landed units equal to that which the same number of units would have required in traditional warfare.

The density of the troops is less than in conventional warfare because of the dispersion necessitated by the conditions for survival. It can be estimated, therefore, that for a given surface area the total mass of supplies is reduced in atomic war.

The combined utilization of special naval means and of heavy helicopters will permit ensuring the initial supply of the first echelons. Later, the combination of marine and amphibious means with transfers of cargo from the former to the latter; the very considerable possibilities of transport aviation over limited distances; and the utilization of submarine pipelines connected with a network of ground lines will palliate the quasi-impossibility of utilizing ports.

As soon as a sufficient number of airstrips for dividing up the danger of an atomic attack have been constructed, it is not farfetched to believe that air transport forces will be able to make a very substantial contribution to the daily tonnage requirements.

The Berlin Airlift, over a distance of 300 to 500 kilometers, brought into the Berlin bridgehead from 3,000 to 5,000 tons daily, with occasional maxima of 12,000 tons and with the use of only three airfields.

Conclusion

During the course of this brief incursion into war conducted with the presently existing means, it has not been attempted to prove that a landing is always possible. Too much data is lacking for attempting to attack this question. But it has been shown that in the light of what is known with regard to the new armaments, such a landing has not become impossible.

New prerequisites are added to the old ones. Techniques connected with the employment of new weapons will have to be observed, and still other techniques and weapons are, perhaps, yet to be conceived.

In spite of all this, and in view of its effects when well launched, the operation merits continuing study.

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If you are moving, please notify the MILITARY REVIEW, Fort Leavenworth, Kansas, of your change of address. Be sure to include your name, *old* address, and *new* address.

BOOKS OF INTEREST TO THE MILITARY READER

ROCKET PROPULSION ELEMENTS. An Introduction to the Engineering of Rockets. By George P. Sutton. 483 Pages. John Wiley & Sons, Inc., New York. $10.25.

BY LT COL MITCHEL GOLDENTHAL, *CE*

This is purportedly the only technical book now available on the specific subject of rocket propulsion. The author is an engineer who apparently has gained an insight into the many varied facets of the rocket propulsion field. He states:

The object of this book is to present the basic elements and the technical problems of rocket propulsion and to describe the physical mechanisms and designs of rocket propulsion systems.

The contents are delineated into three broad categories dealing with liquid propellant rockets, their working fluids, and their design; the same treatment of solid propellant rockets; and the general principles of thermodynamics, chemistry, heat transfer, flight theory, historical background, and testing methods.

The great amount of technical data, tables, and curves indicates that the book is of primary interest to the practicing engineer, researcher, or advanced college student who understands thermodynamic, thermochemical, and ballistic principles.

After reading this book, one easily gains an appreciation of the vast cost of trained personnel and matériel, and the money and time involved in the national defense effort of rocket propulsion development.

JAPANESE PEOPLE AND POLITICS. By Chitoshi Yanaga. 407 Pages. John Wiley & Sons, Inc., New York. $7.50.

COL HEWITT D. ADAMS, *USMC*

This book gives the reader a scholarly analysis of the Japanese character and Japanese Government. The author traces briefly the history of Japan and points out the influences which have molded the modern Japanese character. When dealing with people, the book is a fascinating and enlightening commentary on oriental thought and feeling. It is a valuable contribution toward understanding by occidentals of orientals.

When speaking of the development of the governmental system in Japan, the book becomes rather difficult reading. As a reference on Japanese Government, the book contributes to the literature.

The author discusses the economic problems facing Japan today and tells in rather general terms what is being done to solve them. This question will assume greater importance with the passage of time and increase in population (one million per year), and will require dynamic and positive action to find a solution. Whether the Japanese political system is capable of meeting the challenge will be one of the burning problems of the future.

This book is recommended as background for an understanding of events which will inevitably have great importance for the United States. It should be in the library of any student of oriental or world affairs.

THE TRUE BOOK ABOUT ATOMIC ENERGY. By A. Radcliffe and E. C. Roberson. 142 Pages. The Philosophical Library, New York. $4.75.

BY LT COL GEORGE D. CARNAHAN, *Ord C*

Scientists have been probing into the real nature of ordinary things for over 2,000 years. By the early 1800's they felt fairly sure that everything was made of atoms, and that atoms existed as extremely tiny indestructible elastic balls. Today, we are even more sure that atoms exist, but since Becquerel discovered some 60 years ago that some atoms explode, we no longer believe they are indestructible.

Becquerel's discovery finally led to an understanding of the enormous power locked up in atoms, and thus to the way in which this power could be used. This book tells, in language for the layman, how the existence of atoms was proved, and shows what atoms are really like. It also tells what happens when atoms explode, and how the energy released in these explosions can be used in bombs or to drive trains, ships, airplanes, electric generators, and even space ships.

Finally, in discussing the good and the bad effects of radiations, the author advances the challenging statement that "maybe one day scientists will discover how to make better human beings."

HEROES OF THE ARMY. The Medal of Honor and Its Winners. By Bruce Jacobs. 240 Pages. W. W. Norton & Co., Inc., New York. $3.50.

BY LT COL RODGER R. BANKSON, *Inf*

For gallantry and intrepidity at risk of life above and beyond the call of duty, 2,193 persons have been awarded the United States Army's highest decoration —the Medal of Honor. The vast human interest and tradition behind this medal, as well as its history and legend, have been skillfully related in this book. Included are narratives on some 20 of the award's outstanding winners and an appendix which gives the only existing complete list of Army Medal of Honor winners since 1898. Here are inspiring stories of valor on the highest level, so vividly related that the reader finds himself carried into the most exciting moments in the history of personal bravery.

Through considerable research the author has compiled valuable data regarding this medal which is not otherwise readily available.

This book is recommended reading for those who are interested in personal acts of heroism and outstanding exploits of leadership. It should be included in the personal libraries of students of military history.

THE CHANGING WORLD OF SOVIET RUSSIA. By David J. Dallin. 422 Pages. Yale University Press, New Haven, Conn. $5.00.

BY LT COL WILLIS B. SCUDDER, *Arty*

Some 11 years ago Mr. Dallin wrote a book titled, *The Real Soviet Russia*. Being a realistic assessment of that country, the book shattered many of the sentiments Americans held for their wartime associate and ally.

This latest volume by David Dallin is an outgrowth of the earlier edition and includes new sections on current Soviet internal policies and foreign affairs. The reader is brought up to the year 1955, to include considerable emphasis on events following the death of Stalin.

The author's subject range is considerable. Examples are the new social structure of Soviet Russia; the Soviet system, dealing with the internal organization of the Soviet state and its problems; Soviet foreign policy and its ties with traditional aims and policies; and the dilemma brought on by the clash of Russia's national interests with a policy of aggrandizement dictated by purely Communist concepts.

It is an excellent book, easy to read, and one that is a must for those who would know more of Soviet Russia.

MOSCOW AND THE COMMUNIST PARTY OF INDIA. By John H. Kautsky. 220 Pages. The Technology Press, Massachusetts Institute of Technology and John Wiley & Sons, Inc., New York. $6.00.

BY LT COL IRVING HEYMONT, *Inf*

Professor Kautsky has traced the wandering path of the Communist Party of India in its efforts to keep in step with the Party Line as enunciated in Moscow and Peking. That the strategy of the Communist Party of India took sharp zigs and zags is to be expected. The parallel to Soviet zigs and zags should dispel any illusions of native Communist Parties having their own national aims as their primary objectives.

In developing this parallel in strategy, the author first lists the three basic lines of Soviet strategy which he calls the "left," the "right," and the "neo-Maoist" strategy.

The "left" strategy considers capitalism and native bourgeoisie to be enemies as much as foreign imperialism and feudalism. This strategy seeks to win over the small middle-class elements and peasants by denouncing the leaders of those elements as traitors to their followers. The Soviet revolution generally followed that pattern.

The "right" strategy regards imperialism and feudalism (in western countries it is fascism) as the major enemy. It calls for an alliance of the Communists with anti-Imperialist and antifeudal (or anti-Fascist) parties—that is a popular front. The ultimate goal of this policy is the Socialist revolution.

The "neo-Maoist" strategy, developed by the Chinese Communists during World War II, considers imperialism and feudalism as the main enemies. As in the "right" strategy it seeks alliance with the peasants and lower middle-class elements. However, it rejects and attacks the political leaders of those elements.

In conformance to the Soviet policy, the Communist Party of India during World War II patterned itself after the "right" strategy. With the years, the policy shifted with the Comintern wind vane so now it is pursuing a "neo-Maoist" policy.

Professor Kautsky's book is written in a clear style—no mean feat in view of the complex Communist verbiage. It is recommended to the reader interested in a detailed case study in the relations of the Soviets to a foreign Communist Party.

THE COMPLETE GUIDE FOR THE SERVICEMAN'S WIFE. By Elizabeth Land and Lieutenant Colonel Carroll V. Glines. 466 Pages. Houghton Mifflin Co, Boston, Mass. $5.00.

BY LT COL ROBERT M. WALKER, *Arty*

Since the end of World War II the character of the United States Armed Forces has undergone some fundamental changes. These changes affect the needs of every serviceman's wife. This volume is intended to present her with a practical, thorough, and up-to-date guide to life in the military.

Recognized is the fact that many of America's peacetime personnel are selective-service "draftees" and reservists who have only two or three years in which to learn the details of military life. Many practical details that have been taken for granted in similar books (because they were written primarily for officers' wives) are included. Information often needed by the enlisted man's wife is also supplied. In fact, she will probably be the wife most benefited by the carefully presented and more usable portions of the book.

The chief fault of the volume is the broadness of its coverage. In trying to supply *all* the information a service wife of any branch, service, or rank might need, the authors have recorded some extremely laborious reading in some chapters.

This book is an honest effort to fill a pressing need. Wives new to the service will find much in it of interest and use, and all probably will be able to find something in it of value.

THE UNDAUNTED. The Story of Resistance in Western Europe. By Ronald Seth. 327 Pages. The Philosophical Library, Inc., New York. $6.00.

BY MAJ ARTHUR B. WHITE, *Arty*

Mr. Seth writes of the origins and development of resistance movements in Norway, Greece, Denmark, Luxembourg, Holland, Yugoslavia, Belgium, France, and Italy during World War II. It contains many accounts of the sabotage and nuisance activities engaged in by local partisans, all examples of the courage and daring which characterized underground operations in these countries.

It is more than just an adventure story, however. The book contains a fund of source material relative to resistance methods and techniques and points out dramatically some of the pitfalls relating to the occupation of either hostile or potentially hostile countries. It should prove of particular interest to the student of civil affairs and military government.

THROUGH HELL AND DEEP WATER. By Vice Admiral Charles A. Lockwood, United States Navy, Retired, and Colonel Hans Christian Adamson, United States Air Force, Retired. 317 Pages. Greenberg Publishers, Inc., New York. $4.50.

BY CAPT RALPH J. BAUM, *USN*

This is the story of a submarine, the *USS Harder*, and Sam Dealey, the man who was her commanding officer from the day of first commissioning until her loss with all hands in the South China Sea.

It is an excellent story of leadership and courage. It also tells how the *Harder* turned the tables on the Japanese destroyers by hunting and sinking them rather than being hunted. This is a typical World War II submarine story which has the ring of authenticity that could come only from knowing the *Harder* and her crew and especially her commanding officer, Sam Dealey.

THE CIVIL WAR. Volume I. The American Iliad. By Otto Eisenschiml and Ralph Newman. 719 Pages. Volume II. The Picture Chronicle. By Ralph Newman and E. B. Long. 240 Pages. Grossett & Dunlap, Inc., New York. $10.00.

BY MAJ ROBERT H. ALLAN, JR., *CE*

The American Civil War was, in addition to many other things, probably the greatest emotional experience that the people of this Nation have ever undergone. The authors of these two volumes, both by words and pictures, have successfully captured the panorama of events which contributed to this common experience.

Carefully documented testimony of individuals, great and small, has been woven into an extremely interesting fabric, the pattern of which spells out the terrible history of the Civil War from Major Anderson's defense of Fort Sumter to General Lee's surrender at Appomattox. The important aspects of the naval war are covered so that the military picture is complete for all readers.

This is not a book for the tactician's use in studying the land and sea battles of the Civil War. In fact, the sketch maps supporting the text lack clarity in some respects. But for those who have studied or contemplate studying the Civil War in more or less detail, there could be no finer background than these two volumes. From them comes a clear picture of the chronology of the Civil War and a deeper understanding of what the people were thinking and feeling at the time.

Interestingly written and fast reading, these volumes offer a needed composite of the Civil War for both military and civilian readers.

RETURN TO POWER. A Report on the New Germany. By Alistair Horne. 415 Pages. Frederick A. Praeger, Inc., New York. $6.00.

APPLIED IMAGINATION. Principles and Procedures of Creative Thinking. By Alex F. Osborn. 317 Pages. Charles Scribner's Sons, New York. $3.75.

BY IVAN J. BIRRER, *Ph.D.*

Applied Imagination is an interestingly written, systematic review of the principles and procedures of creative thinking as developed by the author and his colleagues of the Creative Education Foundation. The volume begins with a very readable description of creative thinking as a process. It goes on to develop the special "brainstorming" techniques designed to provoke creativity. Included are a wealth of true life illustrations as well as a number of practice exercises. In fact, the book is designed as a textbook, and a Manual of Instruction for use by the teacher is available. The success of the "brainstorming" technique in nonmilitary problem solving warrants its careful consideration by the Army officer.

THE AGE OF FIGHTING SAIL. By C. S. Forester. 284 Pages. Doubleday & Co., Inc., New York. $5.00.

BY LT COL HAROLD E. BEATY, *CE*

Irate over the practice of the impressment of seamen by British ships of war from American ships and the habit of British ships violating the sovereignty of American territorial waters, the United States as a newly founded Republic in 1812 found herself engaged in war once again with Great Britain. With a Navy consisting of less than a half dozen ships, the United States set about the task of harassing the British until a Navy could be built. Under the outstanding leadership of Rodgers, Decatur, and Hull, the minute Navy made good account of itself on the high seas.

Joshua Humphreys, a noted ship designer, was limited by Congress to ships not larger than frigates. As a result he made them the best in the world; and the frigate became the fighting champion of the seas. The British men-of-war were too heavy to cope with the maneuverability of the lighter American fighting ships, and victory after victory for the young American Navy vastly improved the American morale but spirited the anger of the English. Finally, in 1814, the British provided staggering blows to the United States Navy which brought about an almost stalemate conclusion of hostilities. However, the ultimate conclusion was the final stamp on the independence of the United States and the birth of the American Navy.

For those who are interested in naval history and adventure stories of the sea, this narrative of the naval War of 1812 is recommended for good reading.

THEY MET AT GETTYSBURG. By Edward J. Stackpole. 342 Pages. Eagle Books, Harrisburg, Pa. $4.95.

BY LT COL DANIEL A. RAYMOND, *CE*

This book is an exceptionally fine addition to the ever-expanding coverage of the Civil War. It portrays the events leading up to the epochal meeting engagement at Gettysburg, the three days of battle when the fate of the Union hung in the balance and the surge of the Confederacy reached its point of highest hopes, and the lost opportunities as the engaged forces broke contact and separated to lick their wounds.

General Stackpole has written a searching analysis of the battle as he develops the whys and wherefores of the actions and failures to act that made up the whole of Gettysburg, 1863. His approach is both expert and refreshing. He weighs the estimates, the decisions, and the execution in the light of his own extensive military experience. His use of illustrations and maps makes the action easy to follow and most interesting.

It is recommended reading for any student of military history, and especially for those whose interests include the ever-fascinating Civil War in all its detail.

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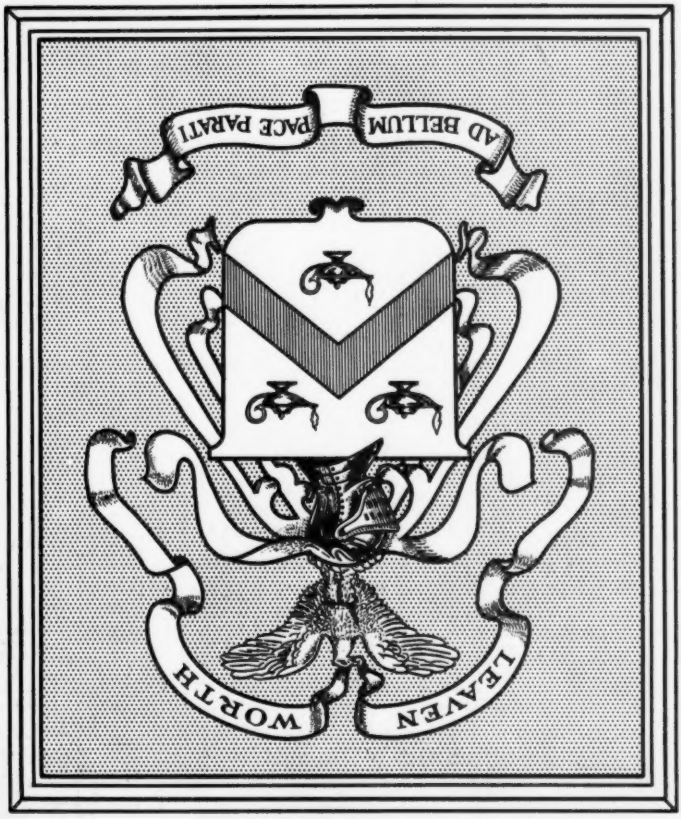
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